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OPERATION, MAINTENANCE, REPAIR,
REPLACEMENT, AND REHABILITATION MANUAL
SONOMA BAYLANDS
WETLAND DEMONSTRATION PROJECT
SONOMA COUNTY, CALIFORNIA

FEBRUARY 1998

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SONOMA BAYLANDS WETLAND DEMONSTRATION PROJECT
OPERATION, MAINTENANCE, REPAIR, REPLACEMENT,
AND REHABILITATION MANUAL
SECTION I - INTRODUCTION

1.1 AUTHORIZATION.

This demonstration project was constructed pursuant to Section 106 of the Water Resources Development Act of 1992 (WRDA '92) (Public Law 102-580), which directs the Secretary of the Army to implement a wetland demonstration project at the Sonoma Baylands site. The following is the text of that authorization:

"SEC. 106. SONOMA BAYLANDS WETLAND DEMONSTRATION PROJECT

(a) GENERAL. The Secretary is directed to develop and carry out in accordance with this section a 320-acre Sonoma Baylands wetland demonstration project in the San Francisco Bay-Delta estuary, California. The project shall utilize dredged material suitable for aquatic disposal to restore, protect, and expand the Sonoma Baylands for the purposes of preserving waterfowl, fish, and other wetland dependent species of plants and animals and to provide flood control, water quality improvement, and sedimentation control.

(b) ADDITIONAL PROJECT PURPOSES. In addition to the purposes described in subsection (a), the purposes of the project under this section are to restore tidal wetlands, provide habitat for endangered species, expand the feeding and nesting areas for waterfowl along the Pacific flyway, and demonstrate the use of suitable dredged material as a resource, facilitating the completion of San Francisco Bay Area dredging projects in an environmentally sound manner.

(c) PLAN.

(1) GENERAL REQUIREMENTS. The Secretary, in cooperation with appropriate Federal and State agencies, and in accordance with this subsection applicable Federal and State environmental laws shall develop a plan for implementation of the Sonoma Baylands project.

(2) CONTENTS. The plan shall include initial design and engineering, construction, general implementation, and site monitoring.

(3) PHASES.

(A) FIRST PHASE. The first phase of the plan for final design and engineering shall be completed not later than the last day of the 6-month period beginning on the date of the enactment of this Act.

(B) SECOND PHASE. The second phase of the plan, including construction of on-site improvements, shall be completed not later than the last day of the 10-month period beginning on the date of the enactment of this Act.

(C) THIRD PHASE. The third phase of the plan, including dredging, transportation, and placement of material, shall be started not later than July 1, 1994.

(D) FINAL PHASE. The final phase of the plan shall include monitoring of project success and function and remediation if necessary.

(d) NON-FEDERAL PARTICIPATION.

(1) NON-FEDERAL SHARE. The non-Federal share of the cost of developing and carrying out the project under this section shall be 25 percent.

(2) LANDS, EASEMENTS, AND RIGHTS-OF-WAY. Subject to paragraph (1), non-Federal interests shall provide lands, easements, and rights-of-way necessary to carry out the project, the value of which shall be credited toward the non-Federal share.

(e) REPORTS TO CONGRESS. Not later than the last day of each of the time periods referred to in subsection (c) (3), the Secretary shall report to Congress on the progress being made toward development and implementation of the project under this section.

(f) AUTHORIZATION OF APPROPRIATIONS. There is authorized to be appropriated \$15,000,000 for carrying out this section for fiscal years beginning after September 30, 1992. Such sums shall remain available until expended."

1.2 PURPOSE.

The purpose of this manual is to furnish local interests with information on the project works and advice on the local operation and maintenance requirements for:

(a) Peripheral levee, including maintenance road, turnouts, and access ramps.

(b) Interior levee and Peninsula 5 to the southernmost extent of maintenance pads at the bases of the electrical transmission towers designated 41/265 and 41/267 by the Pacific Gas and Electric Company, including the maintenance roads and maintenance pads.

(c) Access road and culverted channel crossing near Station 12+65 of the peripheral levee.

(d) Removal, from the bayfront levee breaches and connected bayward channels, of debris, other than sediment, which obstructs tidal circulation between the project site and San Pablo Bay.

This manual was prepared by the San Francisco District, U.S. Army Corps of Engineers, which is responsible for the project engineering, design, and construction.

1.3 REFERENCES.

The following is a list of references relating to the Sonoma Baylands Wetland Demonstration Project:

Sonoma Baylands Wetland Demonstration Project
Sonoma County, California. Demonstration Project Report
and Environmental Assessment San Francisco District,
U.S. Army Corps of Engineers, April 1994.

Entrix, Inc., Gahagan and Bryant Associates, and Philip
Williams and Associates, Ltd. 1991. Sonoma Baylands
Enhancement Project: Technical Studies. Unpub. rpt.
prep. for Sonoma Land Trust and California Coastal
Conservancy.

Sonoma Baylands Wetland Demonstration Project Monitoring
Plan, San Francisco District Army Corps of Engineers and
the California Coastal Conservancy dated October 1996.

1.4 PROJECT LOCATION.

The Sonoma Baylands Wetland Demonstration Project site is located on the northwestern shoreline of San Pablo Bay, the northern arm of San Francisco Bay, in the southwestern portion of Sonoma County, California. The site is near the mouth of the Petaluma River, about 11 miles south of the city of Petaluma and 4 miles east of the city of Novato. The Sonoma Baylands site was a parcel of diked former tidelands that was used for oat hay farming. The site is bounded on the north by the Northwestern Pacific Railroad, on the west by a diked wetland parcel owned by the California State Coastal Conservancy, on the east by similar hayfields, and on the south by a tidal marsh that is mostly within the San Pablo Bay National Wildlife Refuge.

1.5 PROJECT BACKGROUND.

The Sonoma Baylands tidal wetland restoration plan was jointly developed by the California State Coastal Conservancy and the Sonoma Land Trust. Using funding provided by the Coastal Conservancy, the Sonoma Land Trust acquired an 830-acre tract of hayfields and contracted with a team of consultants to develop a wetland restoration plan for a 348-acre (precisely 347.7-acre) portion of the site. Development of the restoration plan was fully coordinated with all concerned agencies. The restoration plan was developed after careful review of several past tidal wetland restoration projects around San Francisco Bay, including projects that had used dredged material, such as the Corps of Engineers' Salt Pond No. 3 marsh restoration project at Alameda Creek. The California State Coastal Conservancy/Sonoma Land Trust restoration plan, and plan formulation rationale, were presented in a detailed report entitled "Sonoma Baylands Enhancement Project: Technical Studies" (Entrix, Inc., et al. 1991).

SECTION II - PROJECT DESCRIPTION

The demonstration project restores tidal wetland on the Sonoma Baylands site and, demonstrates the use of suitable dredged material to accelerate the wetland restoration process. A new tidal levee was constructed along the landward periphery of the site so that the site could be restored to full tidal action without impacting the contiguous floodplain. A single interior levee was constructed to provide maintenance access to two of the four existing high voltage electrical towers on the site. (Access to the other two towers is provided from the peripheral levee). The interior levee divides the site into a 39-acre western pilot

unit and a 309-acre eastern main unit. A series of interior berms or "peninsulas" are constructed within the restoration area to act as wave barriers and to direct tidal channel formation away from the toe of the peripheral levee. Three flashboard weirs were installed in the existing bayfront levee to allow the hydraulic placement of dredged material within the restoration area. The weirs were removed prior to the completion of construction.

In the western pilot unit, approximately 207,400 cubic yards of maintenance-dredged material from the Petaluma River across-the-flats navigation channel was used to partially restore the ground elevation within the restoration area to the historic tidal marsh elevation. After the dredged material consolidated, the pilot unit was restored to tidal action by removing a weir and enlarging the resulting levee breach.

In the eastern main unit, approximately 1.7 million cubic yards of maintenance-dredged material from Oakland Harbor 42-foot deepening project was used to partially restore the ground elevation within the restoration area to the historic tidal marsh elevation. After the dredged material consolidated, the area was restored to tidal action by removal of two weirs, the back filling of one weir and the enlarging of the other weir to a levee breach.

SECTION III - TIDAL HYDROLOGY

Along the central California coast, there are two high and two low tides during each lunar day of approximately 25 hours. One of the chief characteristics of the tides in this region is their diurnal inequality; i.e., a difference in the heights of successive high or low tides. The magnitude of the difference varies considerably within the lunar month and ranges from approximately equal tides to a maximum difference of over five feet between successive low tides. The daily tide range at the Golden Gate, as measured from higher high water to lower low water, is typically about six feet and seldom exceeds eight feet.

The elevations of tides are usually stated relative to Mean Lower Low Water (MLLW). However, because land elevations are normally stated relative to the National Geodetic Vertical Datum (NGVD) (formerly Mean Sea Level Datum of 1929), most tide elevations in this report have been converted to NGVD elevations. Tide data for San Pablo Bay in the vicinity of the Sonoma Baylands site are given in Table 1 (Entrix, et al. 1991).

TABLE 1
TIDE DATA FOR SONOMA BAYLANDS

	DATUM	
	NGVD	MLLW
Mean Higher High Water (MHHW)	3.43ft.	6.06 ft.
Mean High Water (MHW)	2.86	5.49
Mean Tide Level (MTL)	0.61	3.24
National Geodetic Vertical Datum	0.0	2.63
Mean Low Water	-1.63	1.00
Mean Lower Low Water (MLLW)	-2.63	0.0

Extreme high tides in San Francisco Bay result from extreme regional or hemispheric climatic events, such as temporary regional increases in sea level during some El Nino-Southern Oscillation events and local increases in tide levels due to low barometric pressures and high winds associated with severe winter storms. Extreme high tide elevations for San Pablo Bay in the vicinity of the Sonoma Baylands site are given in Table 2 (USACE 1984).

TABLE 2
EXTREME HIGH TIDE ELEVATIONS FOR SONOMA BAYLANDS

EVENT	TIDE ELEVATION
10-year	6.0 feet NGVD
100-year	6.5
500-year	6.7

SECTION IV - PROJECT COOPERATION AGREEMENT

The obligations of the Federal Government and the Coastal Conservancy are specified in the PCA between the Department of the Army and the California State Coastal Conservancy for the Sonoma Baylands Wetland Demonstration Project.

Costs for construction, monitoring, and remediation were shared by the Corps of Engineers and the Coastal Conservancy on a 75% Federal/25% non-Federal basis. The Coastal Conservancy provided all lands, easements, rights-of-way and relocations (LERR), including suitable borrow areas, necessary for the construction, operation, maintenance, monitoring and remediation of the project. The value of the LERR provided by the Coastal Conservancy will be credited toward the Conservancy's share of the total project costs.

As the local sponsor, the Coastal Conservancy will be responsible for operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the completed project. OMRR&R requirements will be limited to the permanent structural features of the project specified in the PCA. All OMRR&R costs will be non-Federal.

The shared project construction costs include costs for the placement of dredged material from the Petaluma River navigation channel within the pilot unit, and the costs of the placement of suitable dredged material from the Oakland Harbor project within the main unit, in excess of the costs necessary to accomplish the disposal of the dredged material from the Federal projects in the most cost effective way, consistent with economic, engineering, and environmental criteria.

SECTION V - OPERATION & MAINTENANCE

5.1 GENERAL.

In accordance with the Project Cooperation Agreement, it is the responsibility of the California State Coastal Conservancy (CSCC) to maintain and operate the project.

5.2 LEVEE MAINTENANCE.

Inspections shall be made as follows at intervals not to exceed 180 days to insure that maintenance measures are being effectively carried out:

(a) No unusual settlement, sloughing, or material loss of grade has taken place. In all cases where the levee grades settle below the final design elevations (excluding initial overbuild), the crown grade shall be raised to the final designed grade. All objectionable material shall be removed and the levee surface scarified to a depth of approximately six inches. New fill similar to that used in the original construction shall be placed and compacted in layers to obtain design grades. Where service roads have settled and are to be repaired, gravel that is salvageable may be removed, stockpiled and reused. Surfaces of levee roads shall

be maintained in original condition. All holes, soft areas and damaged road surfaces shall be repaired annually;

(b) No caving has occurred on either the land side or the interior side of the levee which might affect the stability of the levee section;

(c) No seepage, saturated areas, or sand boils are occurring;

(d) Drains are in good working condition;

(e) No action is being taken, such as burning grass and weeds during inappropriate seasons, which will retard or destroy the growth of sod;

(f) There is no unauthorized grazing or vehicular traffic on the levees;

(g) Encroachments are not being made on the levee rights-of-way which might endanger the structure or hinder its proper and efficient functioning.

(h) Bushes are allowed on the side slopes of the levees provided their size and/or quantity does not impede access for repairs to the levee.

(i) Burrowing mammals will be eradicated when infestation endangers the perimeter levee system. Dens and runways formed within the levee by burrowing mammals are frequently the cause of levee failure during high water levels. Adverse impacts on the endangered salt marsh harvest mouse should be avoidable since burrowing is not a characteristic of the species and the levee areas are not their primary habitat. Advice concerning methods for controlling burrowing mammals can be obtained from the County Agricultural Agent. Control methods should be coordinated with the U.S. Fish and Wildlife Service to ensure that adverse impacts to protected species will not occur.

(j) Service roads shall be maintained in such condition that they will be accessible at all times to all vehicles used in maintenance or flood fighting.

5.3 BREACH AND BAYFRONT CHANNEL MAINTENANCE.

Inspections shall be made as follows at intervals not to exceed 180 days to insure that maintenance measures are being effectively carried out:

(a) The breaches and channels are clear of debris.

(b) The breaches and channels are not being restricted by the deposition of waste materials, building of unauthorized structures or other encroachments.

Any adverse conditions encountered shall be repaired immediately and a description provided in the annual report.

5.4 MISCELLANEOUS MAINTENANCE.

Protective fencing shall be repaired or replaced as required to keep unauthorized vehicles off the levees. Gates shall be kept in good working order, and padlocks or other means shall be maintained for proper security measures.

Settlement stress may cause pipes to sag, putting the center of the pipes at a lower elevation than the outlet end. To allow for proper drainage, the pipes shall be kept free of sediment and debris. The life expectancy of the as-built galvanized steel pipe is 23 years.

SECTION VI - INSPECTION & MANAGEMENT

6.1 THE DISTRICT ENGINEER.

The District Engineer is the authorized engineer, or authorized representative, of the U.S. Army Corps of Engineers, San Francisco District. The following assistance shall be furnished by the District Engineer to the local interest:

(a) Furnish "As Constructed" drawings of the project works;

(b) Make periodic inspections of the project works and notify the local interests of any repairs or maintenance measures which the District Engineer deems necessary in addition to measures taken by the Superintendent;

(c) Submit a request to HQ U.S. Army Corps of Engineers regarding cases of noncompliance, with details thereof, for determination of corrective measures to be taken;

(d) Make prior determination that any proposed encroachment, improvement, excavation, construction within the rights-of-way, or alteration of the project works will not adversely affect the functioning of the facilities;

(e) Assist, advise, or otherwise suggest the course of action to be taken if the project works have sustained serious damage which is beyond the capability of the CSCC to repair.

6.2 THE SUPERINTENDENT.

The Superintendent is the person designated by the CSCC to be directly in charge of an organization which will be fully responsible for the continuous operation and inspection of the project works. The general duties of the Superintendent include the following:

(a) Key personnel shall be trained in order that regular maintenance work may be performed efficiently and to insure that unexpected problems may be handled in an expeditious and orderly manner.

(b) The Superintendent shall maintain a file of reports, records, and drawings concerning the project works readily available at all times to the District Engineer.

(c) No encroachment or trespass which will adversely affect the efficiency of the operation and maintenance of the project works shall be permitted on the rights-of-way for the facilities. The Superintendent shall, therefore, cause notices to be posted at places along the project rights-of-way directing public attention to this. The Superintendent shall take whatever action necessary under his own authority to remove any unauthorized encroachment or to prosecute the trespassers;

(d) The Superintendent shall be fully responsible for maintenance, repairs, and the methods used to accomplish them. All repairs shall be made in accordance with standard engineering practice, to line, to grade, and in accordance with details shown on the "As Constructed" drawings for the project works. No change or alteration shall be made in any feature of the project works without prior determination by CSCC and the District Engineer that such alteration will not adversely affect the stability and functioning of the facilities. Plans and specifications of all changes or alterations that may be proposed by the Superintendent shall be submitted to CSCC for forwarding to the District Engineer for investigation and approval before commencement of the work.

6.3 FIELD INSPECTIONS.

The Superintendent is responsible for insuring periodic inspections of the project are conducted to insure the project is being maintained in compliance. These inspections shall determine the

condition of the various components of the project and disclose any areas that require repair or replacement. Inspections shall be made just before the beginning of the winter season and immediately after each major high water period; otherwise, at intervals not exceeding 180 days. In addition, inspections shall be made after earthquakes measuring 5.0 or higher on the Richter scale when the epicenter is less than 50 miles from the project.

Inspections shall also be performed after smaller earthquakes if specific reports of damage are received.

The suggested checklists and instructions should be followed to insure that features of the project works are not overlooked during inspections. These checklists are to be used to implement required repairs and to prepare the annual reports.

During inspections, particular attention shall be paid to the following:

- (a) Condition of the breaches noting obstacles and debris.
- (b) Condition of levees and any recent repairs;
- (c) Condition of structures and culverts.
- (d) Condition of access and service roads, especially areas where problems are likely to develop.
- (e) Availability of emergency supplies (quantity, location, condition);
- (f) Communications with operating personnel (telephone, radio); and
- (g) Availability of personnel on short notice (operators, labor, etc.).

6.4 ANNUAL REPORTS.

The Superintendent shall submit an annual report to the District Engineer within a 10-day period following 1 April. The report will include statements of the following:

- (a) The physical condition of the works as summarized from logs of inspections;
- (b) Prosecutions for encroachment or trespass;

(c) Maintenance measures taken (date, temporary measures taken, permanent repairs, etc.);

(d) The cost of maintenance and operation for the report period;

(e) Any unusual, abnormal, or unexpected conditions or occurrences bearing on the stability or effectiveness of the works; and

(f) Provide findings of inspection effort, including proposed maintenance plan or statement of no-maintenance required.

The report is to be submitted to the District Engineer, San Francisco District, U.S. Army Corps of Engineers, 333 Market Street, San Francisco, California 94105-2197.

6.5 ENCROACHMENT PERMITS.

Improvements for the facilities and the associated rights-of-way are owned by CSCC and are operated and maintained by them. Permits for use of the rights-of-way of the project so owned, operated, and maintained are subject to the approval of the District Engineer.

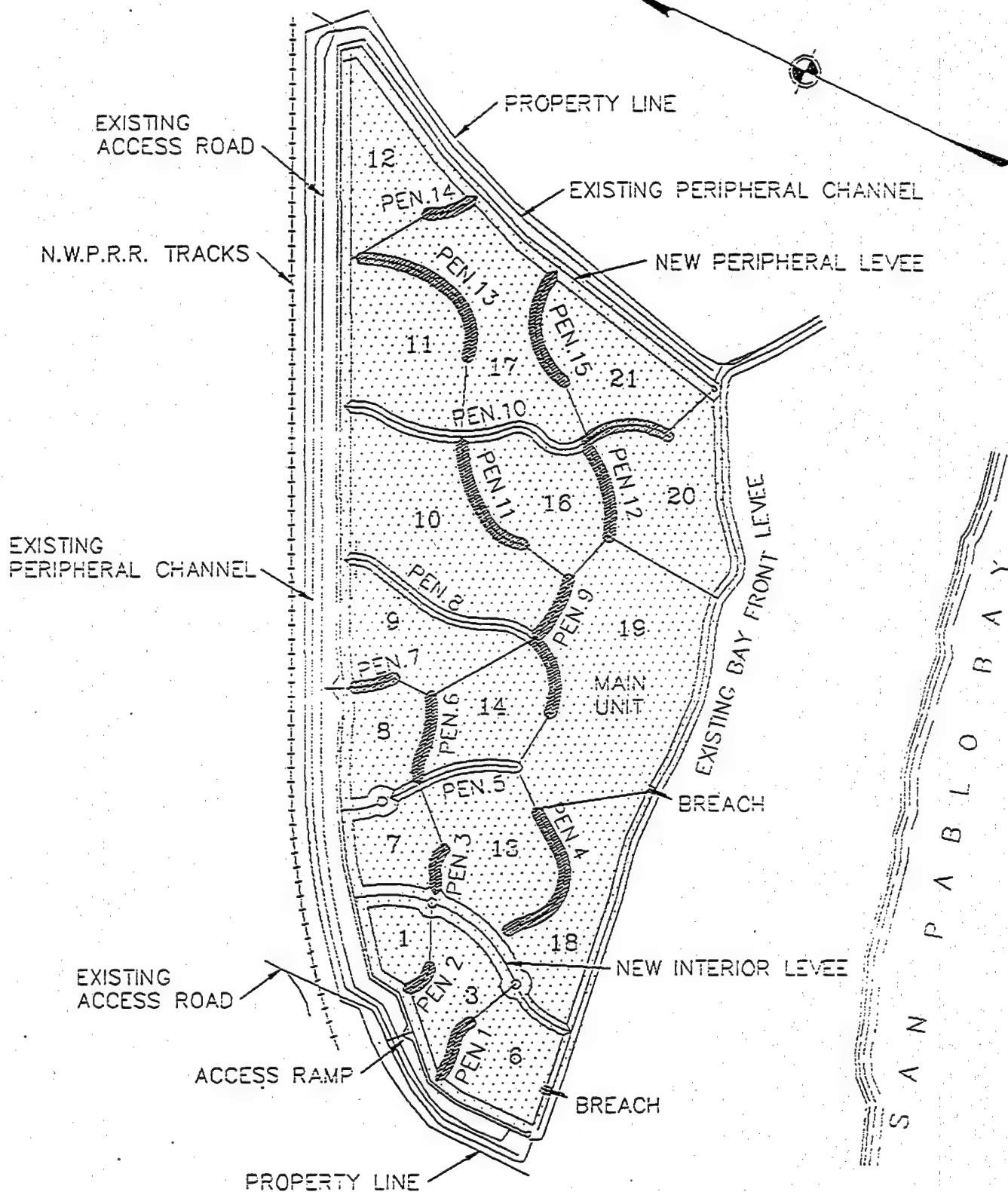
Applications for use of project rights-of-way shall be addressed to CSCC. CSCC will forward the application to the District Engineer together with recommendations and the reasons for encroachment. It is suggested that a draft copy of the permit be included with the application and recommendations, so that any objectionable features of the permit can be eliminated prior to its approval. The proposed permit should state the exact use of the rights-of-way for which permission is being requested and any conditions or restrictions that apply. It should be signed by the applicant and a representative of CSCC. A drawing, sketch, or detailed plan as may be required to show the exact location, nature of the work to be permitted, and the proposed method of its execution should be attached to the copy of the proposed permit. CSCC is responsible for issuing permits with the concurrence of the District Engineer.

If the use proposed by an applicant could result in damage to the rights-of-way or associated structures, it is suggested that the applicant be required to post a bond to protect the local interests from any costs for removal, repair, or restoration. This bond will guarantee that the permittee faithfully meets conditions imposed by the approved permit. In such cases, the permit would state the amount and conditions of the bond.

In cases involving construction or other work in the project rights-of-way, it will be necessary that the District Engineer or his representative inspect the work. The local interest may also wish to make inspections.

A permit format that has been utilized by a number of local interests is attached as Exhibit G.

EXHIBIT A
GENERAL PROJECT PLAN



SONOMA COUNTY, CALIFORNIA
 SONOMA BAYLANDS
 SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
 NOT TO SCALE

EXHIBIT B

TRANSFER CORRESPONDENCE



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET ST.
SAN FRANCISCO, CALIFORNIA 94105-2197

AUG 28 1998

Project Management Division

Bill Ahern
Executive Officer
California Coastal Conservancy
1330 Broadway Suite 1100
Oakland, California 94612

Dear Mr. Ahern:

I am pleased to transmit to you two copies of the Operation, Maintenance, Repair, and Rehabilitation Manual and As-Built Drawings for the Sonoma Baylands Wetland Demonstration Project, Sonoma County, California. This constitutes completion of the functional portion of the Sonoma Baylands Wetland Demonstration Project and hereby gives you notice that the Government shall have no responsibility for operation, maintenance, repair, replacement, and rehabilitation of the functional portion of the project as of the date of this notice.

Upon resolution of all relevant contract claims and appeals and a final audit, the Government shall compute the project construction costs and tender to the Local Sponsor a final accounting of the Local Sponsor's share of project construction costs.

Should you have any questions, please contact Herb Cheong at (415) 977-8705.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter T. Grass", is located below the word "Sincerely,".

Peter T. Grass
Lieutenant Colonel, Corps of Engineers
District Engineer

EXHIBIT C

**PROJECT COOPERATION AGREEMENT
FOR THE WETLAND DEMONSTRATION PROJECT**

PROJECT COOPERATION AGREEMENT

BETWEEN

THE DEPARTMENT OF THE ARMY

AND

THE CALIFORNIA STATE COASTAL CONSERVANCY

FOR CONSTRUCTION OF THE

SONOMA BAYLANDS WETLAND DEMONSTRATION PROJECT
SONOMA COUNTY, CALIFORNIA

THIS AGREEMENT is entered into this sixth day of May, 1994, by and between the DEPARTMENT OF THE ARMY (hereinafter the "Government"), acting by and through the Assistant Secretary of the Army (Civil Works), and the CALIFORNIA STATE COASTAL CONSERVANCY, an agency of the State of California, (hereinafter the "Local Sponsor"), acting by and through its Executive Officer.

WITNESSETH, THAT:

WHEREAS, construction of the Sonoma Baylands Wetland Demonstration Project at Sonoma County, California was authorized by Section 106 of the Water Resources Development Act of 1992, Public Law 102-580;

WHEREAS, the Government and the Local Sponsor desire to enter into a Project Cooperation Agreement for construction of the Sonoma Baylands Wetland Demonstration Project at Sonoma County, California (hereinafter the "Project" and defined in Article I.A. of this Agreement);

WHEREAS, Section 106 of the Water Resources Development Act of 1992, Public Law 102-580, specifies the cost-sharing requirements applicable to the Project;

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended, provides that the construction of any water resources project by the Secretary of the Army shall not be commenced until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project; and

WHEREAS, the Local Sponsor is an agency of the State of California established pursuant to Division 21 of the California Public Resources Code (commencing with Section 31000) with responsibility for implementing a program of agricultural protection, area restoration, and resource enhancement in the coastal zone; and

WHEREAS, on December 6, 1991, the Local Sponsor approved the Sonoma Baylands Tidal Marsh Restoration Project pursuant to Chapter 6 of Division 21 of the California Public Resources Code, providing for the restoration to tidal marsh of the real property referred to herein as the Sonoma Baylands site; and

WHEREAS, on April 20, 1994, the Local Sponsor approved the disbursement of funds for implementation of the Sonoma Baylands Tidal Marsh Restoration Project as part of the Government's Sonoma Baylands Wetland Demonstration Project and authorized its Executive Officer to enter into a Project Cooperation Agreement on substantially the same terms and conditions set forth herein; and

WHEREAS, the Government and the Local Sponsor have the legal authority and capability to perform as hereinafter set forth and intend to cooperate in the cost-sharing and financing of the construction of the Project in accordance with the terms of this Agreement.

NOW, THEREFORE, the Government and the Local Sponsor agree as follows:

ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

For purposes of this Agreement:

A. The term "Project" shall mean the Sonoma Baylands Wetland Demonstration Project, consisting of site preparation, which includes construction of peripheral and interior levees, interior peninsulas, and return flows weirs; and the restoration of tidal wetlands on the pilot and main units of the 348-acre Sonoma Baylands site, as generally described in the Demonstration Project Report for the Sonoma Baylands Wetland Demonstration Project dated April 1994 and approved by the Division Engineer for the South Pacific Division on April 15, 1994 (hereinafter the "Report"). The Government shall not make significant deviations from the Project as described in the Report without the concurrence of the Executive Officer of the Coastal Conservancy. The restoration of wetlands on the pilot unit consists of placement of dredged material from the Petaluma River "across-the-flats" channel, removal of a return flow weir, excavation of a breach in the bayfront levee, monitoring, and, if necessary, remediation. The restoration of wetlands on the main unit consists of removal of two return flow weirs, excavation of

a breach in the bayfront levee, isolation of nine peninsulas from the peripheral levee, monitoring, remediation if necessary, and may include the placement of suitable dredged material from a future Federal navigation project pursuant to Article X of this Agreement.

B. The term "significant deviations" shall mean any change made by the Government that would result in an increase or decrease in the estimated costs of the Project, as set forth in this Agreement, of more than 10 percent.

C. The term "total project costs" shall mean the sum of total project construction costs and total monitoring and remediation costs, but shall not include any costs for operation, maintenance, repair, replacement, or rehabilitation or increased costs for betterments.

D. The term "project construction costs" shall mean all costs incurred by the Local Sponsor and the Government after October 31, 1992, in accordance with the terms of this Agreement directly related to construction of the Project. Such costs shall include, but not necessarily be limited to: all preconstruction engineering and design costs; engineering and design costs during construction; actual construction costs, including the costs of constructing, relocating or modifying railroad bridges and approaches thereto; any costs for the placement of dredged material from the Petaluma River navigation channel within the pilot unit, and the costs of the placement of suitable dredged material from a future Federal navigation project within the main unit pursuant to Article X of this Agreement, in excess of the costs necessary to accomplish the disposal of the dredged material from the Federal project in the most cost effective way, consistent with economic, engineering, and environmental criteria; supervision and administration costs; costs of contract dispute settlements or awards; the value of lands, easements, and rights-of-way, including suitable borrow areas, and the value of relocations, as may be required for the construction, operation, and maintenance of the Project; and the cost of investigations to identify the existence of hazardous substances as identified in Article XIX.a.; but shall not include any costs for operation, maintenance, repair, replacement, or rehabilitation, increased costs for betterments, or monitoring and remediation costs.

E. The term "monitoring" shall mean the acquisition, analysis, and distribution of data to evaluate the success of the Project in meeting its physical and biological functions, or to comply with regulatory requirements, pursuant to a written monitoring plan approved by both the Government and the Local Sponsor.

F. The term "remediation" shall mean any modification of the Project which is required to fulfill the success criteria for physical functions specified in the monitoring plan.

G. The term "total monitoring and remediation costs" shall mean all costs incurred by the Government and the Local Sponsor in accordance with the terms of this Agreement directly related to monitoring and remediation of the Project.

H. The term "pilot unit" shall mean an approximately 39-acre portion of the Sonoma Baylands site located west of the centerline of the proposed interior levee as generally described in the Report.

I. The term "main unit" shall mean an approximately 309-acre portion of the Sonoma Baylands site located east of the centerline of the proposed interior levee as generally described in the Report.

J. The term "Contracting Officer" shall mean a representative of the Government with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The Government shall notify the Local Sponsor in writing of the individual designated as the Contracting Officer as of the effective date of the Agreement and shall also notify the Local Sponsor of any change in that designation.

K. The term "District Engineer" shall mean the U.S. Army Engineer for the San Francisco District.

L. The term "period of construction" shall mean the time from the solicitation of the first construction contract to the time that the District Engineer certifies in writing to the Local Sponsor that construction of the Project, exclusive of monitoring and any necessary remediation, is complete. The District Engineer shall furnish to the Local Sponsor copies of the Government's Written Notice of Acceptance of Completed Work furnished to the contractor(s) for all contracts for the Project.

M. The term "period of monitoring and remediation" shall mean the time from when the District Engineer notifies the Local Sponsor that Construction of the project, exclusive of monitoring and remediation, is complete, to the time that the District Engineer certifies in writing that either all the success criteria in the monitoring plan have been met or that the Local Sponsor and the Government have mutually agreed that monitoring and remediation of the Project is no longer required.

N. The term "highway" shall mean any highway, thoroughfare, roadway, street, or other public road or way.

O. The term "relocations" shall mean the preparation of plans and specifications for, and the accomplishment of, all alterations, modifications, lowering or raising in place, and/or new construction related to, but not limited to, existing: railroads (excluding existing railroad bridges and approaches thereto), highways, and other bridges, buildings, pipelines, public utilities (such as municipal water and sanitary sewer lines, telephone lines, and storm drains), aerial utilities, cemeteries, and other facilities, structures, and improvements determined by the Government to be necessary for the construction, operation maintenance, monitoring and remediation of the Project.

P. The term "fiscal year" shall mean one fiscal year of the Government. The Government fiscal year begins on October 1 and ends on September 30.

Q. The term "functional portion of the Project" shall mean a completed portion of the Project as determined by the District Engineer, in consultation with the Local Sponsor, in writing to be suitable for tender to the Local Sponsor to operate and maintain in advance of completion of the entire Project. To be suitable for tender, the District Engineer must determine, in consultation with the Local Sponsor, that the completed portion of the Project can function independently and for authorized purposes of the Project, although the balance of the Project is not complete.

R. The term "betterment" shall mean the design and construction of a Project feature accomplished on behalf of, or at the request of, the Local Sponsor in accordance with standards which exceed the standards which the Government would otherwise apply for accomplishing the design and construction of the Project.

ARTICLE II - OBLIGATIONS OF THE PARTIES

A. The Government, subject to receiving funds appropriated by the Congress of the United States and using funds provided by the Local Sponsor pursuant to this Agreement, shall expeditiously construct the Project (including construction, modification, or relocation of existing railroad bridges and approaches thereto) applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies. The Local Sponsor shall be afforded the opportunity to review and comment on the solicitations for all contracts, including relevant plans and specifications, prior to the issuance of such solicitation. The Government shall not issue the solicitation for the first construction contract until the Local Sponsor has confirmed in writing its willingness to proceed with the Project. To the extent possible, the Local Sponsor thereafter also will be afforded the opportunity to review and comment on all

modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. In those cases where providing notice to the Local Sponsor of the required contract modifications or change orders is not possible prior to issuance of Notice to Proceed, such notification will be provided after the fact at the earliest date possible. The Contracting Officer will, in good faith, consider the comments of the Local Sponsor, but award of contracts, modifications or change orders, and performance of all work on the Project (whether the work is performed under contract or by Government personnel), shall be exclusively within the control of the Contracting Officer.

B. After the Government determines, in consultation with the Local Sponsor, that the Project or a functional portion of the Project is complete, and notifies the Local Sponsor in writing of such determination, the Government shall turn the completed Project or functional portion of the Project over to the Local Sponsor, which shall accept the Project or functional portion of the Project and be solely responsible for operating, maintaining, repairing, replacing, and rehabilitating the Project or functional portion of the Project in accordance with Article IX hereof. The Government shall provide for a joint inspection of the Project or any functional portion thereof before it is turned over to the Local Sponsor. The Local Sponsor shall be afforded 14 calendar days from the date of the joint inspection within which to object to the proposed turnover. In order to object to the proposed turnover, the Local Sponsor must provide the Government a written statement of the reasons for objecting to the proposed turnover within the 14 calendar days. The Government shall consider the objection in good faith prior to proceeding with the turnover of the Project or functional portion thereof.

C. The Local Sponsor shall contribute 25 percent of total project costs in accordance with the provisions of this paragraph.

1. As further specified in Article III of this Agreement, the Local Sponsor shall provide all lands, easements, and rights-of-way, including suitable borrow areas and perform all relocations determined by the Government to be necessary for construction, operation, maintenance, monitoring, and remediation of the Project.

2. If the value of the contributions provided during the period of construction under paragraph C.1. of this Article is less than 25 percent of project construction costs, the Local Sponsor shall provide, during the period of construction, an additional cash contribution in the amount necessary to make the Local Sponsor's total contribution during the period of construction equal to 25 percent of project construction costs.

3. If the value of the contributions provided under paragraph C.1. of this Article exceed 25 percent of the project construction costs at the end of the period of construction, the Government shall, subject to the availability of funds, reimburse the Local Sponsor for that portion of the value of lands, easements, rights-of-way, including suitable borrow areas, and relocations, which exceed 25 percent of the project construction cost. Alternately, and at the sole discretion of the Government, the Government may at no cost to the Local Sponsor provide any remaining lands, easements, rights-of-way, relocations, including suitable borrow areas required for the construction, operation, maintenance, monitoring, and remediation of the Project in excess of 25 percent of the project construction costs.

4. As further specified in Article VII of this Agreement, the Local Sponsor shall provide 25 percent of total monitoring and remediation costs.

D. The Local Sponsor may request the Government to provide lands, easements, rights-of-way, and suitable borrow areas or perform relocations on behalf of the Local Sponsor. Such requests shall be in writing and shall describe the services requested to be performed. If in its sole discretion the Government elects to perform the requested services or any portion thereof, it shall so notify the Local Sponsor in a writing that sets forth any applicable terms and conditions, which must be consistent with this Agreement. In the event of conflict between such a writing and this Agreement, this Agreement shall control. The Local Sponsor shall be solely responsible for all costs of the requested services and shall pay all such costs in accordance with Article VII.E. of this Agreement. Notwithstanding the provision of lands, easements, rights-of-way, and suitable borrow areas or performance of relocations by the Government, the Local Sponsor shall be responsible, as between the Government and the Local Sponsor, for the costs of cleanup and response in accordance with Article XIX.C. of this Agreement.

E. The Local Sponsor may request the Government to accomplish betterments. Such requests shall be in writing and shall describe the betterments requested to be accomplished. If the Government in its sole discretion elects to accomplish the requested betterments or any portion thereof, it shall so notify the Local Sponsor in a writing that sets forth any applicable terms and conditions, which must be consistent with this Agreement. In the event of conflict between such a writing and this Agreement, this Agreement shall control. The Local Sponsor shall be solely responsible for all costs due to the requested betterments and shall pay all such costs in accordance with Article VII.E. of this Agreement.

F. No Federal funds may be used to meet the Local Sponsor's share of total project costs under this Agreement unless the expenditure of such funds is expressly authorized by statute as verified in writing by the Federal granting agency.

ARTICLE III - LANDS, RELOCATIONS, AND PUBLIC LAW 91-646

A. The Government shall provide, in coordination with the Local Sponsor, a written description of the anticipated real estate requirements for the Project. Thereafter, the Local Sponsor shall furnish all lands, easements and rights-of-way, including suitable borrow areas, as may be determined by the Government in that description, or in any subsequent description coordinated with the Local Sponsor, to be necessary for the construction, operation, maintenance, monitoring, and remediation of the Project, and shall furnish to the Government evidence supporting the Local Sponsor's legal authority to grant rights-of-entry to such lands. The necessary lands, easements, and rights-of-way for the Project may be provided incrementally for each construction contract. All lands, easements, and rights-of-way determined by the Government to be necessary for work to be performed under a construction contract must be furnished prior to the solicitation of that construction contract.

B. The Government shall provide, in coordination with the Local Sponsor, a written description of the anticipated relocation requirements for the Project. Thereafter, the Local Sponsor shall accomplish or arrange for accomplishment all relocations determined by the Government to be necessary for construction, operation, maintenance, monitoring, and remediation of the Project.

C. The Local Sponsor shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, and performing relocations for construction, operation, maintenance, monitoring, and remediation of the Project, and inform all affected persons of applicable benefits, policies and procedures in connection with said Act.

ARTICLE IV - VALUE OF LANDS AND RELOCATIONS

A. The Local Sponsor shall not receive any credit for lands, easements, and rights-of-way, including suitable borrow areas, previously provided as an item of cooperation for another Federal project nor shall the value thereof be included in total project costs. The value of the lands, easements, and rights-of-way, including suitable borrow areas, to be included in

total project costs and credited towards the Local Sponsor's share of total project costs shall be determined in accordance with the following procedures:

1. If the lands, easements, or rights-of-way are owned by the Local Sponsor as of the date the first construction contract for the Project is awarded, the credit shall be the fair market value of the interest at the time of such award or, in exceptional circumstances, upon request of the Local Sponsor and in the sole discretion of the Assistant Secretary of the Army for Civil Works, the actual purchase price paid by the Local Sponsor. The fair market value, if used, shall be determined by an appraisal, to be obtained by the Local Sponsor, which has been prepared by a qualified appraiser who is acceptable to both the Local Sponsor and the Government. The appraisal shall be reviewed and approved by the Local Sponsor and the Government.

2. If the lands, easements, or rights-of-way are acquired by the Local Sponsor after the date of award of the first construction contract for the Project, the credit shall be the fair market value of the interest at the time such interest is acquired. The fair market value shall be determined as specified in Article IV.A.1. of this Agreement. If the Local Sponsor pays an amount in excess of the approved appraised fair market value, the Local Sponsor may be entitled to a credit for the actual purchase price paid provided that the purchase price is approved by the Government in writing.

3. If the Local Sponsor acquires more lands, easements, or rights-of-way than the Government determines are necessary for construction, operation, maintenance, monitoring, and remediation of the Project, then only the value of such portions of those acquisitions as have been determined by the Government to be necessary for the construction, operation, maintenance, monitoring, and remediation of the Project shall be included in total project costs and credited towards the Local Sponsor's share.

4. Credit for lands, easements, and rights-of-way acquired through eminent domain proceedings occurring after the date of this Agreement will be based on court awards for the real property interests taken, or on stipulated settlements or portions of stipulated settlements that have received written Government approval. The fair market value for the purposes of filing an eminent domain proceeding in court shall be based on an appraisal prepared and approved as specified in Article IV.A.1. of this Agreement.

5. Credit for lands, easements, or rights-of-way acquired by the Local Sponsor within a five-year period preceding the date of this Agreement, or at any time after this Agreement is signed, will also include the reasonable documented incidental

costs of acquiring the interest, e.g., closing and title costs, appraisal costs, survey costs, attorney's fees, plat maps, and mapping costs, as well as the actual amounts expended for payment of any Public Law 91-646 relocation assistance benefits provided in accordance with the obligations under this Agreement.

B. The value of relocations which will be included in total project costs and credited toward the Local Sponsor's share of total project costs shall be determined by the Government as set forth below:

1. Highways and Highway Bridges: Only that portion of the cost as would be necessary to construct substitute bridges and highways to the design standard that the State of California would use in constructing a new bridge or highway under similar conditions of geography and traffic loads.

2. Utilities and Facilities, Structures and Improvements (including railroads): Actual relocation costs, less depreciation, less salvage value, plus the cost of removal, less the increased cost of betterments. New materials shall not be used in any alteration or relocation if materials of value and usability equal to those in the existing facility are available or can be obtained as salvage from the existing facility or otherwise, unless the provision of new material is more economical. If, despite the availability of used material, new material is used, where the use of such new material represents an additional cost, such cost will not be included in total project costs, nor credited toward the Local Sponsor's share.

ARTICLE V - CONSTRUCTION PHASING AND MANAGEMENT

A. To provide for consistent and effective communication, the Local Sponsor and the Government shall, prior to the solicitation of the first construction contract, appoint representatives to coordinate on all facets of development of the Project, including design, scheduling, plans, specifications, real estate requirements, awards of contracts, contract modifications and change orders, contract costs, claims, and other related matters.

B. These representatives shall generally oversee the construction, monitoring and remediation of the Project and shall be identified as the Project Coordination Team. They shall meet regularly during the period of construction and the period of monitoring and remediation and will be informed of all changes in total project costs. The Project Coordination Team shall make recommendations concerning construction, monitoring and remediation as it deems are warranted to the District Engineer, including suggestions to avoid potential sources of dispute.

C. The District Engineer and the Contracting Officer shall, in good faith, consider the recommendations of the Project Coordination Team on all matters relating to construction, monitoring and remediation and anticipated requirements for operation, maintenance, repair, replacement and rehabilitation of the Project. The District Engineer, having the legal authority and responsibility for construction, monitoring and remediation of the Project, has discretion to accept, reject, or modify the recommendations of such representatives. The Contracting Officer has discretion to accept, reject, or modify the recommendations of such representatives as they affect the administration of Government contracts.

ARTICLE VI - MONITORING AND REMEDIATION

A. The Government and the Local Sponsor will prepare a detailed monitoring plan in coordination with other concerned agencies, prior to the restoration of tidal action to the pilot unit. The monitoring plan will include, but not necessarily be limited to, the physical, biological, and chemical attributes to be monitored, methods for measuring those attributes, monitoring frequency and duration, preparation and distribution of monitoring reports, estimated monitoring costs, and success criteria with respect to both physical and biological functions. The monitoring plan may be subsequently revised by the Government with the written concurrence of the Local Sponsor and in coordination with other concerned agencies.

B. In the event monitoring indicates the need for remediation in order to fulfill the success criteria for physical functions this shall be accomplished pursuant to written agreement of the District Engineer and the Local Sponsor subject to receiving funds appropriated by the Congress of the United States and using funds provided by the Local Sponsor.

C. The Government and the Local Sponsor will continue to monitor the Project until the monitoring results indicate that all the success criteria in the monitoring plan have been met, or until it is mutually agreed that monitoring and remediation are no longer required.

ARTICLE VII - METHOD OF PAYMENT

A. The Government shall maintain current records of contributions provided by the parties and current projections of total project costs and costs due to betterments. By March 1st of each year and at least quarterly thereafter, the Government shall provide the Local Sponsor with a report setting forth all contributions provided to date and the current projections of total project costs, of total costs due to betterments, of the maximum amount of total project costs determined in accordance with Article XXII of this Agreement, of the components of total

project costs, of each party's share of total project costs, of the Local Sponsor's total cash contributions required in accordance with Articles II.C., II.D., and II.E. of this Agreement, and of the funds the Government projects to be required from the Local Sponsor for the upcoming fiscal year. Project construction costs, not including the placement of dredged material within the main unit, are currently estimated to be \$7,632,000 and the Local Sponsor's share of project construction costs, not including the placement of dredged material within the main unit, is currently estimated to be \$1,908,000. In order to meet its share of these project construction costs, the Local Sponsor must provide a cash contribution currently estimated to be \$595,000. Such amounts are estimates subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Local Sponsor.

B. The Local Sponsor shall provide, during the period of construction, the cash contribution required under Article II.C.2. of this Agreement in accordance with the following provisions:

1. For purposes of budget planning, the Government shall notify the Local Sponsor by March 1st of each year of the estimated funds that will be required from the Local Sponsor to meet its share of project construction costs for the upcoming fiscal year.

2. No later than 30 calendar days prior to the award of the first construction contract, the Government shall notify the Local Sponsor of anticipated expenditures and the Local Sponsor's share of the project construction costs required for the first fiscal year of construction, including the Local Sponsor's share of costs attributable to the Project incurred prior to the initiation of construction. No later than 15 calendar days thereafter, the Local Sponsor shall verify to the satisfaction of the Government that the Local Sponsor has deposited the requisite amount in an escrow or other account acceptable to the Government with interest accruing to the Local Sponsor.

3. For the second and subsequent fiscal years of project construction, the Government shall, no later than 60 calendar days prior to the beginning of the fiscal year, notify the Local Sponsor of anticipated expenditures and the Local Sponsor's share of project construction costs for that fiscal year. No later than 30 calendar days prior to the beginning of the fiscal year, the Local Sponsor shall make the necessary funds available to the Government through the funding mechanism specified in Article VII.B.2. of this Agreement.

4. As construction, of the Project proceeds, the Government shall on a regular basis each year adjust the amounts required to be provided under this paragraph to reflect actual costs. If at any time during the period of construction the Government determines that additional funds will be needed from the Local Sponsor, the Government shall so notify the Local Sponsor, and the Local Sponsor, no later than 60 calendar days from receipt of such notice, shall make the necessary funds available through the funding mechanism specified in Article VII.B.2. of this Agreement.

5. The Government will draw on the funds provided by the Local Sponsor such sums as the Government deems necessary to cover contractual and in-house fiscal obligations attributable to the Project as they are incurred, as well as Project costs incurred by the Government prior to the initiation of the construction.

C. The Local Sponsor shall provide the cash contribution required under Article II.C.4. of this Agreement in accordance with the following provisions:

1. For purposes of budget planning, the Government shall notify the Local Sponsor by March 1st of each year of the estimated funds that will be required from the Local Sponsor to meet its share of total monitoring and remediation costs for the upcoming fiscal year.

2. No later than 60 calendar days after the approval of the Government funds for the Government's fiscal year, the Government shall notify the Local Sponsor of anticipated expenditures and the Local Sponsor's share of total monitoring and remediation costs required for the first fiscal year of construction, including the Local Sponsor's share of costs attributable to the Project incurred prior to the initiation of monitoring and remediation. No later than 30 calendar days thereafter, the Local Sponsor shall verify to the satisfaction of the Government that the Local Sponsor has deposited the requisite amount in an escrow or other account acceptable to the Government with interest accruing to the Local Sponsor.

3. For the second and subsequent fiscal years of monitoring and remediation, the Government shall, no later than 60 calendar days prior to the beginning of the fiscal year, notify the Local Sponsor of anticipated expenditures and the Local Sponsor's share of monitoring and remediation costs for that fiscal year. No later than 30 calendar days prior to the beginning of the fiscal year, the Local Sponsor shall make the necessary funds available to the Government through the funding mechanism specified in Article VII.C.2. of this Agreement.

4. As monitoring and remediation of the Project proceeds, the Government shall on a regular basis each year adjust the amounts required to be provided under this paragraph to reflect actual costs. If at any time during the period of monitoring and remediation the Government determines that additional funds will be needed from the Local Sponsor, the Government shall so notify the Local Sponsor, and the Local Sponsor, no later than 60 calendar days from receipt of such notice, shall make the necessary funds available through the funding mechanism specified in Article VII.C.2. of this Agreement.

5. The Government will draw on the funds provided by the Local Sponsor such sums as the Government deems necessary to cover contractual and in-house fiscal obligations attributable to the Project as they are incurred, as well as Project costs incurred by the Government prior to the initiation of the construction.

D. In advance of the Government incurring any financial obligation associated with additional work under Article II.D. or II.E. of this Agreement, the Local Sponsor shall provide the Government with the full amount of the funds required to pay for such additional work by delivering a check payable to "FAO, USAED, San Francisco" to the District Engineer. The Government shall draw from the funds provided by the Local Sponsor such sums as the Government deems necessary to cover the Government's financial obligations for such additional work as they are incurred. In the event the Government determines that the Local Sponsor must provide additional funds to meet its cash contribution, the Government shall notify the Local Sponsor in writing of the additional funds required. Within 30 calendar days thereafter, the Local Sponsor shall provide the Government with a check for the full amount of the additional required funds.

E. Upon completion of the Project construction and resolution of all relevant contract claims and appeals, the Government shall compute the project construction costs and tender to the Local Sponsor a final accounting of the Local Sponsor's share of project construction costs.

1. In the event the total contribution by the Local Sponsor at the end of the period of construction is less than the Local Sponsor's required share of project construction costs, the Local Sponsor shall, no later than 90 calendar days after receipt of written notice, make a cash payment to the Government of whatever sum is required to meet the Local Sponsor's required share of project construction costs.

2. In the event the total contribution by the Local Sponsor at the end of the period of construction is more than the

Local Sponsor's required share of the project construction costs, the Government shall, no later than 90 calendar days after the final accounting of construction costs is complete, subject to the availability of funds, return the excess to the Local Sponsor. In the event existing funds are not available to repay the Local Sponsor for excess contributions provided, the Government shall seek such appropriations as are necessary to repay the Local Sponsor for excess contributions provided.

F. Upon completion of the Project monitoring and remediation, and resolution of all relevant contract claims and appeals, the Government shall compute total project costs and tender to the Local Sponsor a final accounting of the Local Sponsor's share of total project costs.

1. In the event the total contribution by the Local Sponsor at the end of the period of monitoring and remediation is less than the Local Sponsor's required share of total project costs, the Local Sponsor shall, no later than 90 calendar days after receipt of written notice, make a cash payment to the Government of whatever sum is required to meet the Local Sponsor's required share of total project costs.

2. In the event the total contribution by the Local Sponsor at the end of the period of monitoring and remediation is more than the Local Sponsor's required share of total project costs, the Government shall, no later than 90 calendar days after the final accounting of the Project is complete, subject to the availability of funds, return the excess to the Local Sponsor. In the event existing funds are not available to repay the Local Sponsor for excess contributions provided, the Government shall seek such appropriations as are necessary to repay the Local Sponsor for excess contributions provided.

ARTICLE VIII - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to expeditiously resolve the dispute through negotiation, in accordance with procedures and schedules developed by the District Engineer and the Local Sponsor. If the parties cannot resolve the dispute through negotiation, they shall endeavor to develop a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. The parties shall each pay 50 percent of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE IX - OPERATION, MAINTENANCE, REPAIR,
REPLACEMENT, AND REHABILITATION (OMRR&R)

A. After the District Engineer has determined that construction of the Project, or functional portion of the Project, is complete and provided the Local Sponsor with written notice of such determination, the Local Sponsor shall perform or ensure the performance of all operation, maintenance, repair, replacement, and rehabilitation of Project, or functional portion of the Project, at no cost to the Government, in accordance with the general provisions of the Report, applicable Federal and State laws as provided in Article XIII, and specific directions prescribed by the Government, in consultation with the Local Sponsor, in an OMRR&R Manual, and any subsequent amendments thereto adopted in consultation with the Local Sponsor. Upon completion of the Project the Government shall have no responsibility for operation, maintenance, repair, replacement, or rehabilitation. The operation, maintenance, repair, replacement, and rehabilitation of Project, or functional portion of the Project, shall be limited to the operation, maintenance, repair, replacement, and rehabilitation of the following Project features:

1. Peripheral levee, including maintenance road, turnouts, and access ramps.

2. Interior levee and Peninsula 5 to the southernmost extent of maintenance pads at the bases of the electrical transmission towers designated 41/265 and 41/267 by the Pacific Gas and Electric Company, including the maintenance roads and maintenance pads.

3. Access road and culverted channel crossing near Station 12+65 of the peripheral levee.

4. Removal, from the bayfront levee breaches and connected bayward channels, of debris, other than sediment, which obstructs tidal circulation between the project site and San Pablo Bay.

B. The Local Sponsor hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the Local Sponsor owns or controls for access to the Project for the purpose of inspection, and, if necessary, for the purpose of completing, remediating, monitoring, operating, maintaining, repairing, replacing, or rehabilitating the Project. If an inspection shows that the Local Sponsor for any reason is failing to fulfill the Local Sponsor's obligations under this Agreement without receiving prior written approval from the Government, the Government will send a written notice to the Local Sponsor. If after 30 calendar days from receipt of notice, the Local Sponsor continues to fail to perform, then the

Government shall have the right to enter, at reasonable times and in a reasonable manner, upon lands the Local Sponsor owns or controls for access to the Project for the purpose of completing, remediating, monitoring, operating, maintaining, repairing, replacing, or rehabilitating the Project. No completion, remediation, monitoring, operation, maintenance, repair, replacement, or rehabilitation by the Government shall operate to relieve the Local Sponsor of responsibility to meet the Local Sponsor's obligations as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity to assure faithful performance pursuant to this Agreement.

ARTICLE X - RESTORATION OF MAIN UNIT

A. This Agreement must be amended in order to address the placement of dredged material on the main unit pursuant to Section 106 of the Water Resources Development Act of 1992. No dredged material may be placed in the main unit except pursuant to an amendment to this Agreement. Neither the Government nor the Local Sponsor shall be obligated by this Agreement to pay any cost for placing dredged material on the main unit except pursuant to an amendment to this Agreement.

B. If the Government and the Local Sponsor have not amended this Agreement to provide for the placement of dredged material in the main unit pursuant to Section 106 of the Water Resources Development Act of 1992 within a period of four years and six months from the date of this Agreement, the Government and the Local Sponsor shall either:

1. Amend this Agreement to extend the four year and six month period discussed above; provided, however, that if this Agreement has not been amended within five years from its date, the parties shall restore tidal action to the main unit as provided in paragraph B.2. below; or

2. Take the following actions to restore the main unit:

- a. Restore the main unit to tidal action within a period of five years and six months from the date of this Agreement (including removal of Weirs 1 and 2, breaching of the bayfront levee, and isolation of Peninsulas No. 4, 5/6, 8/9, 10/11/12, and 13 from the peripheral levee),

- b. Initiate monitoring of the main unit upon the restoration of tidal action to the main unit, and

- c. Perform any required remediation

ARTICLE XI - RELEASE OF CLAIMS

The Local Sponsor shall hold and save the Government free from all damages arising from the construction, operation, maintenance, monitoring, remediation, repair, replacement, and rehabilitation of the Project and any related betterments, except for damages due to the fault or negligence of the Government or the Government's contractors.

ARTICLE XII - MAINTENANCE OF RECORDS AND AUDIT

A. Not later than 60 calendar days after the effective date of this Agreement, the Government and the Local Sponsor shall develop procedures for keeping books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the Local Sponsor shall maintain such books, records, documents, and other evidence in accordance with these procedures and for a minimum of three years after the period of construction and resolution of all relevant claims arising therefrom. To the extent permitted under applicable Federal laws and regulations, the Government and the Local Sponsor shall each allow the other to inspect such books, documents, records, and other evidence.

B. Pursuant to 32 C.F.R. Section 33.26, the Local Sponsor is responsible for complying with the Single Audit Act of 1984, 31 U.S.C. Sections 7501-7507, as implemented by Office of Management and Budget (OMB) Circular No. A-128 and Department of Defense Directive 7600.10. Upon request of the Local Sponsor and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the Local Sponsor and independent auditors any information necessary to enable an audit of the Local Sponsor's activities under this Agreement. The costs of any non-Federal audits performed in accordance with this paragraph shall be allocated in accordance with the provisions of OMB Circulars A-87 and A-128, and such costs as are allocated to the Project shall be included in total project costs and cost shared in accordance with the provisions of this Agreement.

C. In accordance with 31 U.S.C. Section 7503, the Government may conduct audits in addition to any audit that the Local Sponsor is required to conduct under the Single Audit Act. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits performed in accordance with this paragraph shall be included in total project

costs and cost shared in accordance with the provisions of this Agreement.

ARTICLE XIII - FEDERAL AND STATE LAWS

In the exercise of the Local Sponsor's rights and obligations hereunder, the Local Sponsor agrees to comply with all applicable Federal and State laws and regulations, including Section 601 of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE XIV - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the Local Sponsor each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other.

B. In the exercise of its rights and obligations under this Agreement, neither party shall provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights such other party may have to seek relief or redress against such contractor either pursuant to any cause of action that such other party may have or for violation of any law.

ARTICLE XV - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE XVI - COVENANT AGAINST CONTINGENT FEES

The Local Sponsor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Local Sponsor for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this Agreement without liability, or, in the Government's discretion, to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE XVII - TERMINATION OR SUSPENSION

A. If at any time the Local Sponsor fails to make the payments required under this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate or suspend work on the Project until the Local Sponsor is no longer in arrears, unless the Assistant Secretary of the Army (Civil Works) determines that continuation of work on the Project is in the interest of the United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the Project. Any delinquent payment shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13-week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3-month period if the period of delinquency exceeds 3 months.

B. If the Government fails to receive annual appropriations in amounts sufficient to meet Project expenditures for the then current or upcoming fiscal year, the Government shall so notify the Local Sponsor. After 60 calendar days either party may elect without penalty to terminate this Agreement pursuant to this Article or to defer future performance hereunder; however, deferral of future performance under this Agreement shall not affect existing obligations or relieve the parties of liability for any obligation previously incurred. In the event that either party elects to terminate this Agreement pursuant to this Article, both parties shall conclude their activities relating to the Project and proceed to a final accounting in accordance with Article VII.G. of this Agreement. In the event that either party elects to defer future performance under this Agreement pursuant to this Article, such deferral shall remain in effect until such time as the Government receives sufficient appropriations or until either the Government or the Local Sponsor elects to terminate this Agreement.

C. Notwithstanding any other provision of this Agreement, if the award of any contract, or the award of any contract modification or change order outside the scope of the original contract, for construction of the Project would result in the total obligations and expenditures for construction of the Project exceeding \$8,500,000, the award of that contract, or contract modification or change order outside the scope of the original contract, and subsequent contracts shall be deferred until such time as the Government and the Local Sponsor agree to resume construction of the Project.

ARTICLE XVIII - OBLIGATION OF FUTURE APPROPRIATIONS

A. Nothing herein shall constitute, nor be deemed to constitute, an obligation of future appropriations by the

Legislature of the State of California.

B. The Local Sponsor intends to satisfy its obligations hereunder. The Local Sponsor shall inform the Government of the total amount of appropriations that are available to cover Local Sponsor obligations under this Agreement at the time the Local Sponsor signs this Agreement and for each year thereafter. The Local Sponsor shall include in its budget request for each State fiscal year funds sufficient to cover its obligations, and will use all reasonable and lawful means to secure sufficient appropriations to make the payments necessary to fulfill its obligations. The Local Sponsor reasonably believes that funds in amounts sufficient to discharge its obligations can and will lawfully be appropriated and made available for this purpose. In the event the State Legislature does not provide funds in sufficient amounts to discharge the Local Sponsor's obligations, the Local Sponsor shall use its best efforts to satisfy any requirements for payments under this Agreement from any sources of funds available for this purpose, other than those provided by the State Legislature. Furthermore, if State funds become unavailable for the Local Sponsor's performance of its obligations, the Government reserves the right to withhold future funding to the Local Sponsor and to take any other lawful measures necessary to protect the Government's interest related to this Agreement.

ARTICLE XIX - HAZARDOUS SUBSTANCES

A. After execution of this Agreement and upon direction by the District Engineer, the Local Sponsor shall perform, or cause to be performed, such investigations for hazardous substances as are determined necessary by the Government and the Local Sponsor to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9601-9675, on lands necessary for the Project construction, operation, and maintenance. All actual costs incurred by the Local Sponsor which are properly allowable and allocable to performance of any such investigations for hazardous substances shall be included in project construction costs and cost shared in accordance with Section 106 of Public Law 102-580.

B. In the event it is discovered through an investigation for hazardous substances or other means that any lands, easements, or rights-of-way to be acquired or provided for the Project contain any hazardous substances regulated under CERCLA, the Local Sponsor and the Government shall provide prompt notice to each other, and the Local Sponsor shall not proceed with the acquisition of such lands, easements, or rights-of-way until mutually agreed.

C. The Government and the Local Sponsor shall determine whether to initiate construction of the Project, or if already in construction, to continue with construction of the Project, or to terminate construction of the Project for the convenience of the Government in any case where hazardous substances regulated under CERCLA are found to exist on any lands necessary for the Project. Should the Government and the Local Sponsor determine to proceed or continue with construction after considering any liability that may arise under CERCLA, the Local Sponsor shall be responsible, as between the Government and the Local Sponsor, for any and all necessary clean up and response costs, to include the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall not be considered a part of total project costs as defined in this Agreement. In the event the Local Sponsor fails to provide any funds necessary to pay for clean up and response costs or to otherwise discharge the Local Sponsor's responsibilities under this paragraph upon direction by the Government, the Government may either terminate or suspend work on the Project or proceed with further work as provided in Article XVII of this Agreement.

D. The Local Sponsor and the Government shall consult with each other under Article V of this Agreement to assure that responsible parties bear any necessary cleanup and response costs as defined in CERCLA. Any decision made pursuant to Article XIX.C. of this Agreement shall not relieve any party from any liability that may arise under CERCLA.

E. As between the Government and the Local Sponsor, the Local Sponsor shall be considered the operator of the Project for the purposes of CERCLA liability. To the maximum extent practicable, the Local Sponsor shall operate, maintain, repair, replace, and rehabilitate the Project in a manner that will not cause liability to arise under CERCLA.

ARTICLE XX - NOTICES

A. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally, given by prepaid telegram, or mailed by first-class (postage prepaid), registered, or certified mail, as follows:

If to the Local Sponsor:

Executive Officer
California State Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, California 94612

If to the Government:

District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

B. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at such time as it is either personally delivered or seven calendar days after it is mailed, as the case may be.

ARTICLE XXI - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XXII - SECTION 902 PROJECT COST LIMITS

The Local Sponsor has reviewed the provisions set forth in Section 902 of Public Law 99-662, as amended, and understands that Section 902 establishes the maximum amount of total project costs for the Sonoma Baylands Wetland Demonstration Project at Sonoma County, California. Notwithstanding any other provision of this Agreement, the Government shall not make a new Project financial obligation, make a Project expenditure, or afford credit toward total project costs for the value of any contribution provided by the Local Sponsor, if such obligation, expenditure, or credit would result in total project costs exceeding this maximum amount, unless otherwise authorized by law. On the effective date of this Agreement, this maximum amount is estimated to be \$26,870,000, as calculated in accordance with ER 1105-2-100 using October 1, 1993 price levels and allowances for projected future inflation. The Government shall adjust this maximum amount in accordance with Section 902.

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CERTIFICATE OF AUTHORITY

I, Marcia Grimm, do hereby certify that I am the principal legal officer of the California State Coastal Conservancy, that the California State Coastal Conservancy is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the California State Coastal Conservancy in connection with the Project, and to pay damages, if necessary, in event of the failure to perform, in accordance with Section 221 of Public Law 91-611, and that the persons who have executed this Agreement on behalf of the California State Coastal Conservancy have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 6 day of April, 1994.

Marcia Grimm

Senior Staff Counsel

CERTIFICATION REGARDING LOBBYING

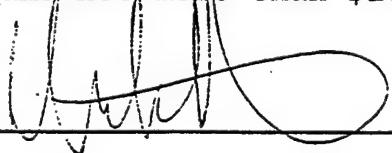
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



Michael L. Fischer
Executive Officer
California State Coastal Conservancy

DATE: 5/6/94

STANDARD AGREEMENT - APPROVED BY THE
STD.2(REV.5-91) ATTORNEY GENERALCONTRACT
NUMBER
93-047

AM. NO.

THIS AGREEMENT, made and entered into this 6th day of May, 19 94,
in the State of California, by and between State of California, through its duly elected or appointed, qualified and actingTAXPAYERS FEDERAL EMPLOYER
IDENTIFICATION NUMBER

TITLE OF OFFICER ACTING FOR STATE

Executive Officer

AGENCY

State Coastal Conservancy

, hereafter called the State, and

CONTRACTOR'S NAME

United States of America, Acting Through the Department of the Army

, hereafter called the Contractor.

WITNESSETH: That the Contractor for and in consideration of the covenants, conditions, agreements, and stipulations of the State hereinafter expressed, does hereby agree to furnish to the State services and materials as follows:

Construction and post-construction monitoring of the Sonoma Baylands Wetland Demonstration Project as described in the Project Cooperation Agreement attached hereto and incorporated herein by this reference. Amounts encumbered pursuant to this agreement shall be available to pay the Local Sponsor share of the project costs as provided in Attachment A.

CONTINUED ON 25 SHEETS, EACH BEARING NAME OF CONTRACTOR AND CONTRACT NUMBER.

IN WITNESS WHEREOF, this agreement has been executed by the parties hereto, upon the date first above written.

STATE OF CALIFORNIA

CONTRACTOR

AGENCY

State Coastal Conservancy

CONTRACTOR

United States of America, Department of the Army

BY (AUTHORIZED SIGNATURE)

BY (AUTHORIZED SIGNATURE)

PRINTED NAME OF PERSON SIGNING

Michael Fischer

PRINTED NAME AND TITLE OF PERSON SIGNING

John Zirschky, Assistant Secretary of the Army

TITLE

Executive Officer

ADDRESS

AMOUNT ENCUMBERED
BY THIS DOCUMENT

\$1,825,000

PROGRAM/CATEGORY (CODE AND TITLE)

Resource Enhancement

FUND TITLE

OCSLA8(g) RevFund/
HabitatConsFundDepartment of General
Services
Use OnlyPRIOR AMOUNT
ENCUMBERED FOR THIS
CONTRACT

\$0

(OPTIONAL USE)

Sonoma Baylands Wetland Enhancement

TOTAL AMOUNT
ENCUMBERED TO DATE

\$1,825,000

ITEM

3760-301-262 = \$1,000,000

3760-301-164 = \$ 825,000

CHAPTER

587

STATUTE

1992

1993

FISCAL YEAR

92/93

93/94

OBJECT OF EXPENDITURE (CODE AND TITLE)

Capital Outlay

I hereby certify upon my own personal knowledge that budgeted funds are available for the period and purpose of the expenditure stated above.

T.B.A. NO.

B.R. NO.

SIGNATURE OF ACCOUNTING OFFICER

DATE

☐ CONTRACTOR ☐ STATE AGENCY ☐ DEPT. OF GEN. SER. ☐ CONTROLLER

ORIGINAL SIGNED BY
GARRY NESS
Asst. Chief Counsel

MAY 5 1994

EXHIBIT D

**FIRST AMENDMENT OF THE PROJECT
COOPERATION AGREEMENT FOR THE WETLAND
DEMONSTRATION PROJECT**

FIRST AMENDMENT
OF THE
PROJECT COOPERATION AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CALIFORNIA STATE COASTAL CONSERVANCY
FOR CONSTRUCTION OF THE
SONOMA BAYLANDS WETLAND DEMONSTRATION PROJECT
SONOMA COUNTY, CALIFORNIA

THIS AMENDMENT is enacted this 9th day of December, 1994, by and between the DEPARTMENT OF THE ARMY (hereinafter the "Government"), acting by and through the Assistant Secretary of the Army (Civil Works), and the CALIFORNIA STATE COASTAL CONSERVANCY, an agency of the State of California (hereinafter the "Local Sponsor"), acting by and through its Executive Officer.

WITNESSETH, THAT:

WHEREAS, construction of the Sonoma Baylands Wetland Demonstration Project at Sonoma County, California, was authorized by Section 106 of the Water Resources Development Act of 1992, Public Law 102-580;

WHEREAS, the Local Sponsor is an agency of the State of California established pursuant to Division 21 of the California Public Resources Code (commencing with Section 31000) with responsibility for implementing a program of agricultural protection, area restoration, and resource enhancement in the coastal zone;

WHEREAS, on December 6, 1991, the Local Sponsor approved the Sonoma Baylands Tidal Marsh Restoration Project pursuant to Chapter 6 of Division 21 of the California Public Resources Code, providing for the restoration to tidal marsh of the real property referred to herein as the Sonoma Baylands site;

WHEREAS, the Government and the Local Sponsor entered into a Project Cooperation Agreement for construction of the Sonoma Baylands Wetland Demonstration Project at Sonoma County, California on May 6, 1994 (hereinafter the "Agreement");

WHEREAS, Article I of the Agreement provides that the restoration of tidal wetlands on the main unit of the 348-acre Sonoma Baylands site may include the placement of suitable dredged material from a future Federal navigation project pursuant to Article X of the Agreement;

WHEREAS, Article X of the Agreement provides that the Agreement must be amended in order to address the placement of dredged material on the main unit pursuant to Section 106 of the Water Resources Development Act of 1992;

WHEREAS, concurrently with the execution of this Amendment, the Government is entering into a Project Cooperation Agreement dated December 9, 1994 with the City of Oakland, California (hereinafter the "Oakland PCA") for Construction of the Oakland Inner Harbor Project and the Oakland Outer Harbor Project (hereinafter the "Oakland Projects");

WHEREAS, on October 19, 1994, the Local Sponsor approved the placement of dredged material from the Oakland Projects at the Sonoma Baylands, pursuant to the "Oakland Harbor 42-Foot Deep-Draft Navigation Improvement Project General Design Memorandum" approved by the Government on September 12, 1994, and authorized its Executive Officer to enter into an amendment to the Agreement on substantially the same terms and conditions set forth herein;

WHEREAS, the Government and the Local Sponsor have the legal authority and capability to perform as hereinafter set forth.

NOW, THEREFORE, the Government and the Local Sponsor agree to amend the Agreement as follows:

1. Unless otherwise specified, all paragraph and Article references are to paragraphs and Articles in the Agreement.

2. ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

a. Insert "reduction of the height of the bayfront levee," immediately after "levee," in line 16 of Paragraph A.

b. Insert "placement of approximately 2.0 million cubic yards (but no more than 2.5 million cubic yards) of suitable dredged material from the Oakland Projects," immediately after "consists of" in line 18 of Paragraph A.

c. Insert "reduction of the height of the bayfront levee," immediately after "levee," in line 19 of paragraph A.

d. Delete the second sentence of paragraph D. and replace it with the following sentence:

"Such costs shall include, but not necessarily be limited to: all preconstruction engineering and design costs; engineering and design costs during construction; actual construction costs, including the costs of constructing, relocating or modifying railroad bridges and approaches thereto; any costs for the placement of dredged material from the Petaluma River navigation channel within the pilot unit in excess of the costs necessary to accomplish the disposal of the dredged material in the most cost effective way, consistent with economic, engineering, and environmental criteria; costs of placement of suitable dredged material from the Oakland Projects within the main unit in excess of the costs necessary to accomplish the disposal of the dredged material in the most cost effective way, consistent with economic, engineering, and environmental criteria, as allocated by the Government to the Project in accordance with Article II.G of this Agreement; supervision and administration costs; costs of contract dispute settlements or awards (except as provided in Article II. G of this Agreement); the value of lands, easements, and rights-of-way, including suitable borrow areas, and the value of relocations, as may be required for the construction, operation, and maintenance of the Project; and the cost of investigations to identify the existence of hazardous substances as identified in Article XIX.A; but shall not include any costs for operation, maintenance, repair, replacement or rehabilitation, increased costs for betterments, monitoring and remediation costs, or any costs of the Oakland Projects except as specified in Article II. G of this Agreement."

e. Insert the following paragraphs immediately after paragraph R:

"S. The term "suitable dredged material" shall mean material that the Government determines meets all applicable standards and criteria for the creation of wetlands pursuant to requirements of law and regulation; is consistent with waste discharge requirements of the San Francisco Bay Regional Water Quality Control Board, the Report, and the Oakland Harbor 42-Foot Deep-Draft Navigation Improvement Project General Design

Memorandum; and complies with the actions of all public agencies issuing permits and/or acting pursuant to the National Environmental Policy Act and California Environmental Quality Act, to the extent those acts are applicable.

T. The term "cost of construction of the general navigation features of the Oakland Projects" shall mean all costs incurred by the Port of Oakland and the Government in accordance with the terms of the Oakland PCA directly related to the construction of the general navigation features of the Oakland Projects. The term is defined in Article I.G of the Oakland PCA as "the total cost of construction of general navigation features of the project and the Sonoma Baylands Wetland Demonstration Project" and, subject to the terms of Oakland PCA, shall include but is not necessarily limited to the following costs for the Oakland Projects: continuing planning and engineering costs incurred after October 1, 1985; advanced engineering and design costs; preconstruction engineering and design costs; engineering and design costs during construction; the costs of investigations to identify the existence and extent of hazardous substances in accordance with Articles XV.A.1. and A.2 of the Oakland PCA; costs of historic preservation activities in accordance with Articles XVIII.A. B., F.1., and G.1. of the Oakland PCA; actual construction costs, including the costs of alteration, lowering, raising or replacement and attendant removal of existing bridges over navigable waters of the United States; supervision and administration costs; costs of participation in the Project Coordination Team in accordance with Article V of the Oakland PCA; costs of contract dispute settlements or awards; movement of the Navy sewer line in the Inner Harbor; and costs of audit in accordance with Articles X.B. and X.C. of the Oakland PCA. The term does not include the value of any lands, easements, rights-of-way, relocation, or borrow and dredged or excavated material disposal areas; any financial obligation for operation and maintenance of the general navigation features; any costs due to betterments; any costs of dispute resolution under Article VII of the Oakland PCA; any costs of aids to navigation; any costs of construction, operation, or maintenance of the local service facilities; or any cost of removal and disposal of dredged material associated with the maintenance of the current project depth plus one foot of overdepth dredging associated therewith."

3. ARTICLE II - OBLIGATIONS OF THE PARTIES

a. Delete "for all contracts" immediately following "solicitations" in line 9 of Paragraph A, and insert "for all contracts pertaining to the Project, including contracts for construction of the Oakland Harbor Projects," immediately after

"specifications" on line 10 of Paragraph A .

b. Insert the following paragraph immediately after paragraph F:

"G. For purposes of determining the costs of placement of suitable dredged material from the Oakland Projects within the main unit in excess of the costs necessary to accomplish the disposal of the dredged material in the most cost effective way, consistent with economic, engineering, and environmental criteria, the Government shall allocate the cost of construction of general navigation features of the Oakland Projects between the Project and the Oakland Projects as follows:

1. 4.370% of the cost of construction of general navigation feature of the Oakland Projects shall be allocated to the Project, except as provided in subparagraphs 2 and 3 below.

2. There shall not be allocated to the Project any portion of the costs of the Oakland Projects that is associated with contract delays, increased costs, change orders, contract modifications, or dispute settlements and awards, resulting from the fault or negligence of the Port of Oakland, resulting from deferments of the award of contracts or execution of contract modifications or change orders pursuant to Article II. A.3 of the Oakland PCA, or resulting from changed conditions at Galbraith Golf Course.

3. There shall be allocated to the Project 100% of the portion of the cost of construction of the general navigation features of the Oakland Projects that is associated with contract delays, increased costs, change orders, contract modifications, or dispute settlements and awards resulting from the fault or negligence of the Local Sponsor, resulting from deferments of the award of contracts or execution of contract modifications or change orders pursuant to Article XVII.C. of this Agreement, or resulting from changed conditions at the Sonoma Baylands site. It is expressly understood and agreed that, assuming that no party is at fault or negligent and that there are no changed conditions at the Sonoma Baylands site, it is not possible to determine in advance of actual construction the exact amount of dredged material that is required to be placed at the Sonoma Baylands site to achieve the desired elevation of + 2.0 feet NGVD, and some variance is unavoidable and expected between the preconstruction estimated amount and the actual amount of dredged material required for that purpose. Accordingly, any portion of the cost of construction of general navigation features of the Oakland Projects that is associated with contract delays, increased costs, change orders, contract modifications, dispute settlements and awards, and resulting from such unavoidable and expected variance, shall not be deemed to be a result of "changed

conditions at the Sonoma Baylands site" but shall be allocated in accordance with subparagraph 1 of this Paragraph G.

4. All costs of the Oakland Projects not specifically allocated to the Project shall be allocated to the Oakland Projects."

4. ARTICLE V - CONSTRUCTION PHASING AND MANAGEMENT

a. Insert ", including changes in costs of construction of general navigation features of the Oakland Projects" immediately after "total project costs" in line 6 of Paragraph B.

5. ARTICLE VII - METHOD OF PAYMENT

a. Delete the third sentence of paragraph A and replace it with the following sentence:

"Project construction costs are currently estimated to be \$8,500,000 and the Local Sponsor's share of project construction costs is currently estimated to be \$2,125,000."

b. Delete the fourth sentence of paragraph A and replace it with the following sentence:

"In order to meet its share of these project construction costs, the Local Sponsor must provide a cash contribution currently estimated to be \$820,000."

6. ARTICLE X - RESTORATION OF MAIN UNIT

a. Delete paragraph B and replace it with the following paragraph:

"B. If the placement of dredged material from the Oakland Projects within the main unit has not been completed within a period of four years and six months from the date of the First Amendment to this Agreement, the Government and the Local Sponsor shall either:

1. Amend this Agreement to extend the four year and six month period discussed above; provided, however, that if this Agreement has not been amended to further extend the period within five years from the date of the First Amendment to this Agreement, the parties shall restore the main unit as provided in paragraph B.2. below; or

2. Take the following actions to restore the main unit:

a. Restore the main unit to tidal action within a period of five years and six months from the date of the First Amendment to this Agreement (including the removal of Weirs No. 1 and 2, breaching and reduction in heights of the bayfront levee, and isolation of Peninsulas No. 5/6, 8/9, and 10/11/12 from the peripheral levee),

b. Initiate monitoring of the main unit upon restoration of tidal action to the main unit, and

c. Perform any required remediation."

b. Insert the following paragraph C immediately after paragraph B:

"C. Dredged material may be placed on the main unit from the Oakland Projects only pursuant to this Agreement as amended.

1. Except solely for provisions of this Agreement that expressly require the Local Sponsor to share the cost of construction of the general navigation features of Oakland Projects, the Local Sponsor shall have no obligation, responsibility or liability with respect to the Oakland Projects.

2. No amendment to the Oakland PCA after the date of its execution, concurrently with the execution of the First Amendment to this Agreement, shall affect any of the rights or obligations of the parties to this Agreement or any of the costs of construction of general navigation features of the Oakland Projects, as allocated to the Project under provisions of this Agreement, except by written amendment of this Agreement."

7. ARTICLE XVII - TERMINATION OR SUSPENSION

a. Delete "\$8,500,000" in line 6 of paragraph C. and replace it with "\$10,000,000".

8. All provisions of the Agreement not specifically amended herein, remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment, which shall become effective upon the date it is signed by the Assistant Secretary of the Army (Civil Works).

THE DEPARTMENT OF THE ARMY

BY: *For John H. Zirschky*

JOHN H. ZIRSCHKY
Acting Assistant Secretary
of the Army (Civil Works)

DATE: 9 Dec 94

THE CALIFORNIA STATE COASTAL
CONSERVANCY

BY: *Ronald W. Kukulka*

RONALD W. KUKULKA
Deputy Executive Officer

DATE: 12/2/94

APPROVED: STATE OF CALIFORNIA
DEPARTMENT OF GENERAL SERVICES

BY: *[Signature]*

FOBS	POLICY	BUDGET
Department of General Services		
APPROVED		
DEC 06 1994		
<i>[Signature]</i>		
Asst. Chief Counsel		

CERTIFICATE OF AUTHORITY

I, Marcia Grimm, do hereby certify that I am the principal legal officer of the California State Coastal Conservancy, that the California State Coastal Conservancy is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the California State Coastal Conservancy, as amended, in connection with the Project, and to pay damages, if necessary, in event of the failure to perform, in accordance with Section 221 of Public Law 91-611, and that the persons who have executed this Amendment on behalf of the California State Coastal Conservancy have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 2nd day of December, 1994.

Marcia Grimm
Senior Staff Counsel

CERTIFICATION REGARDING LOBBYING


The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



Ronald W. Kakulka, Deputy
Executive Officer
California State Coastal Conservancy

DATE: 12/2/94

EXHIBIT E
INSPECTION CHECKLIST FORMAT

**INSPECTION CHECKLIST
FOR
LEVEES AND EARTH CHANNELS**

Inspector _____
Superintendent _____

Date _____

ITEM	REMARKS
A) Location by levee station	
B) Landside levee conditions	
C) Waterside levee conditions	
D) Evidence of seepage	
E) Channel bed conditions	
F) Accumulation of debris and refuse	
G) Condition of roadways and ramps	
H) Condition of gates and fences	
I) New construction or encroachment within rights-of-way	
J) Measures taken since last inspection	
K) Comments	

**EXHIBIT E
SHEET 1 OF 5**

**INSTRUCTIONS FOR COMPLETING
INSPECTION CHECKLIST FOR LEVEES AND EARTH CHANNELS**

- ITEM A)** Indicate station corresponding to plans of project. Indicate land or water side.
- ITEM B)** Indicate condition of the levee landside embankment and levee crown. Note if there is any settlement, sloughing, loss of grade or erosion on the levee. Indicate amount of settlement to tenths of a foot. Indicate the new slope if sloughing has occurred. Indicate extent of erosion if it occurred.
- ITEM C)** Indicate condition of the levee waterside embankment. Note if there is any settlement, sloughing, loss of grade or erosion on the levee. Indicate amount of settlement to tenths of a foot. Indicate the new slope if sloughing has occurred. Indicate extent of erosion if it occurred.
- ITEM D)** Indicate any evidence of seepage through the embankment section, such as boils, etc.
- ITEM E)** Indicate condition of the channel invert. Note the extent of aggravation or degradation. Indicate any change in channel grade or alignment. Note amount of sediment buildup such as shoals or extent of scouring.
- ITEM F)** Note nature and extent of debris and refuse that might interfere with flow of the channel.
- ITEM G)** Indicate condition of roadways and ramps. Note any changes such as potholes, undulations, or any other damage. Note any inadequacy in surface drainage system.
- ITEM H)** Indicate the condition of all gates.

- ITEM I)** Indicate any construction along the project rights-of-way. Note any new structure which encroaches the rights-of-way.
- ITEM J)** Indicate any maintenance measures that have been performed since inspection, and their present condition.
- ITEM K)** Note any comments and observations not covered under other items.

**INSPECTION CHECKLIST
FOR
DRAINAGE STRUCTURES**

Inspector _____
Superintendent _____

Date _____

ITEM	REMARKS
A) Location by levee station	
B) Accumulation of debris and Refuse	
C) Condition of riprap	
D) Condition of pipes	
E) Measures taken since last inspection	
F) Comments	

**INSTRUCTIONS FOR COMPLETING
INSPECTION CHECKLIST FOR DRAINAGE STRUCTURES**

- ITEM A)** Indicate station corresponding to plans of project. Indicate land or water side.

- ITEM B)** Note nature and extent of debris and refuse that might interfere with flow of the Drainage Structure.

- ITEM C)** Indicate condition of riprap. Note if the rock has been deteriorated or damaged. Note any movement of rock or if any erosion has taken place. Note the presence of any vegetal growth through the riprap.

- ITEM D)** Indicate condition of pipes. Note any settlement or damage that has occurred.

- ITEM E)** Indicate any maintenance measures that have been performed since inspection, and their present condition.

- ITEM F)** Note any comments and observations not covered under other items.

EXHIBIT F
ANNUAL REPORT FORMAT

TO: District Engineer
San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, CA 94105-2197

(1 Apr 19____)

Dear Sir:

The annual report for the period of (1 Apr 19____ to 1 Apr 19____) for
the _____ project, _____
_____ County, California is as follows:

A) The condition of the project works is indicated by the Inspector's
Report, copies of which are enclosed, and may be summarized as follows:

(Superintendent's summary of conditions may be inserted here)

It is our intention to perform (within 12 months) the following maintenance
operations in order to repair or correct the conditions indicated above:

(Superintendent's summary of maintenance operations for the following 12
months)

B) The inspections have indicated (no) or (the following) encroachments
or trespasses upon the project right-of-way.

C) (No) (_____) permits have been issued for (the
following improvements) or (construction within) the project right-of-way.

Executed copies of the permit documents issued
are transmitted for your files.

D) The status of maintenance measures, indicated in the previous annual
report as being required or as suggested by the representatives of the
District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion)

E) The fiscal statement of the Superintendent's operations for the
current report period is as follows:

	<u>Labor</u>	<u>Material</u>	<u>Equipment</u>	<u>Overhead</u>	<u>Total</u>
1. Inspection					
2. Maintenance					
3. Flood Fighting Operations					

TOTAL

Respectfully submitted,

Superintendent of Works

EXHIBIT G

ENCROACHMENT PERMIT FORMAT

**PERMIT
FOR
RIGHT-OF-ENTRY**

(Name of Local Sponsor)

(Location)

Permission is hereby granted to:

(Name of Firm or Individual)

(Address)

TO: (Describe in these spaces the proposal, including kind and type of construction, purpose intended, location by stationing. Indicate passageway provided by means of gates, etc. Use separate sheets if necessary, identifying each by reference herein.)

PROVIDED THAT:

Upon termination or expiration of this permit (whether by voluntary relinquishment by the grantee, by revocation by the grantor or otherwise) the grantee shall remove all structures, improvements, or appurtenances which may have been erected or constructed under this permit, and shall repair or replace any portion of the wetland project or right-of-way which may have been damaged by his operations (including grading and seeding, or sodding, if necessary), to the satisfaction of the grantor.

The structure or operation for which this permit is issued shall be maintained by the grantee in such manner as shall not

injure or damage the wetland project, or interfere with its operation and maintenance in accordance with regulations of the Secretary of the Army.

The structure or operation covered by this permit may be damaged, removed or destroyed by the grantor in time of high water emergency if such action is determined by the grantor to be necessary in order to preserve life or property or prevent damage or impairment to the use or safety of the wetland project, and the grantor shall not be liable to the grantee for such damage or destruction.

Unless otherwise specifically provided herein, this permit may be canceled at any time by the grantor upon 10 days written notice mailed to the address shown above. During such 10 day period, (or such other period as may be provided herein), the grantee will be permitted to remove any property or improvements installed under this permit, and to repair or replace any damage to the wetland project right-of-way or structures resulting from his use or operations. At the end of such period, the grantor shall have the right to possess and dispose of any such property or improvements remaining upon its right-of-way, and may proceed to repair or replace any such damage, and the grantee herein shall be liable to the grantor for the full cost of such repairs or replacements.

The construction, installation and maintenance of the structure or structures covered by this permit shall be subject to inspection by representatives of the grantor and the United States at all reasonable times.

In the event the work covered by this permit consists of or includes major construction, the cost of inspection thereof by the grantor and/or the United States shall be paid by the applicant.

Grantee agrees that it will not use the area or facilities covered by this permit, or permit such area to be used, for any purpose other than is specifically covered by this permit.

(Use these spaces for special considerations applicable to this permit.)

Signature (Grantor)

(Title)

(Date)

Terms of this permit are hereby accepted.

Signature (Grantee)

(Date)

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DISTRICT, CORPS
NCISCO, CALIFORN
COUNTY, CALIFORN
A BAYLANDS
ONSTRATION DI**

ARMY
CORPS OF ENGINEERS
CALIFORNIA
CALIFORNIA
PROJECT

⑥

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⑦

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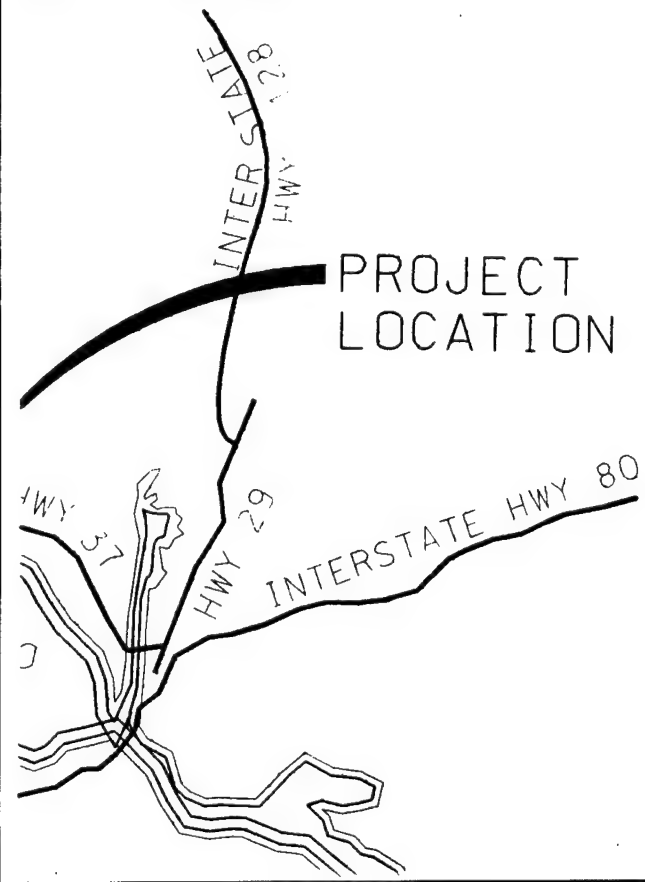
WETLAND

⑧

LOCATION MAP

NOT TO SCALE

NTA ROSA



PROJECT
LOCATION

PETA

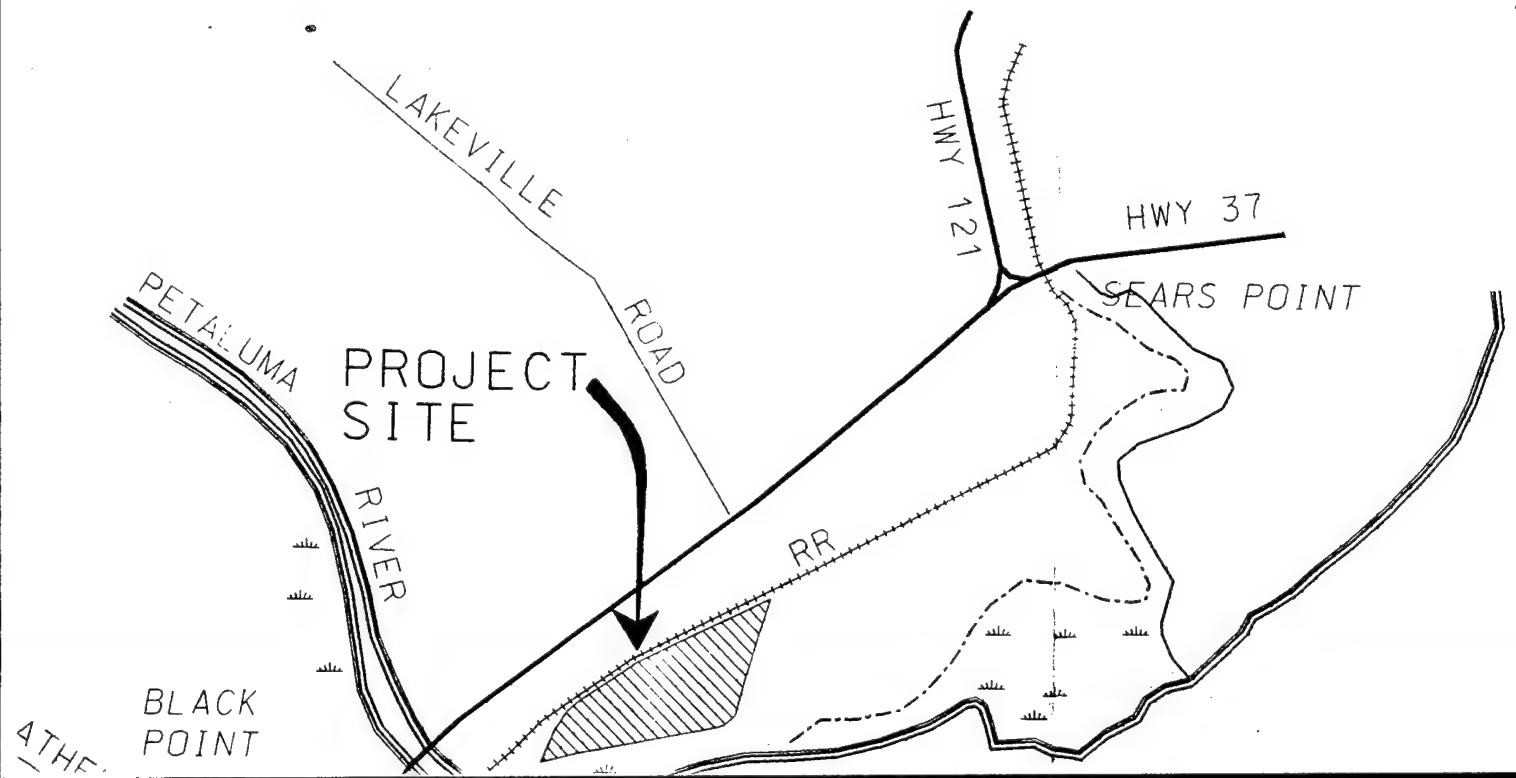
BLAC
POIN
ATL

ND DEMONSTRATION

⑨

VICINITY MAP

NOT TO SCALE



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10

SCHEDUL

SHEET NO.	
1	PROJECT TITLE,
2	PLAN SHEET 1 OF
3	PLAN SHEET 2 OF
4	PLAN SHEET 3 OF
5	TYPICAL SECTION

JECT

⑪

DULE OF DRAWINGS

DRAWING

ECT TITLE, LOCATION AND VICINITY MAPS, SCHEDULE OF DR

SHEET 1 OF 3

SHEET 2 OF 3

SHEET 3 OF 3

CAL SECTIONS

1a

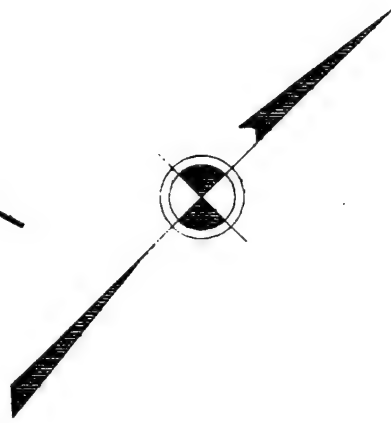
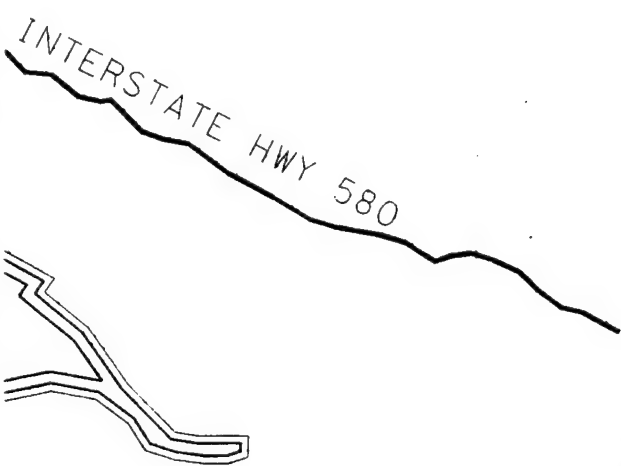
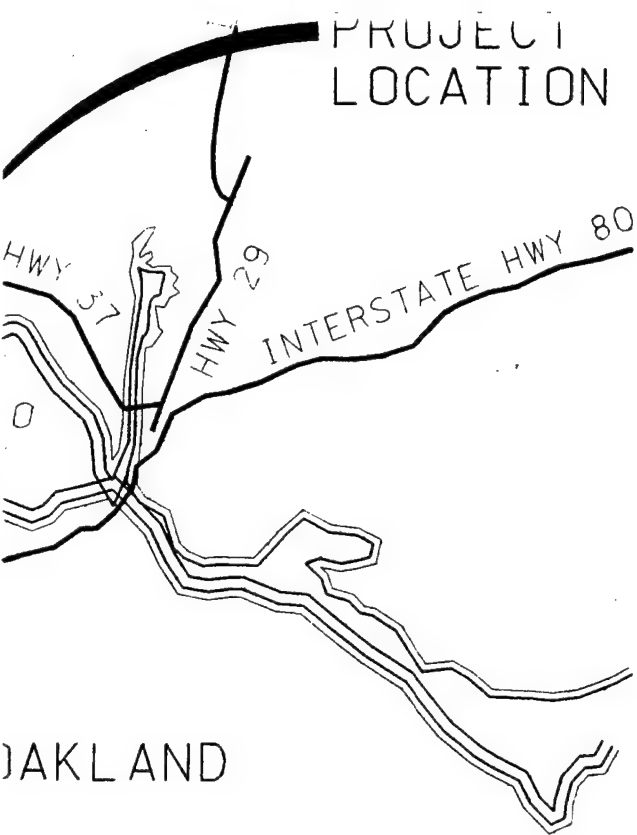
AWINGS

MAPS, SCHEDULE OF DRAWINGS

13



PROJECT
LOCATION



PETA

BLA
POI
ATHERTON

(15)

LE
ROAD

121

HWY 37

SEARS POINT

PROJECT
SITE

RR

BLACK
POINT

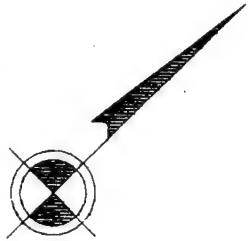
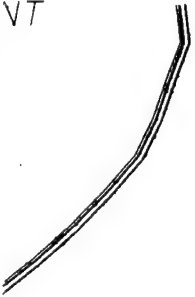
ATHERTON
AVE

SAN PABLO BAY



16

VT



5

TYPICAL SECTIC

CAL SECTIONS

17

		AS-BUILT	
SYMBOL		DESCRIPTION	
REVISIONS			
			U.S. ARM S/
DRAWN BY: BYL		SONOMA COUNTY SONOMA WETLAND DEM TITLE :	
CHECKED BY: SC & SM			
DESIGNED BY: SC			
PROJECT COORDINATOR			
SUBMITTED:			
CHIEF, GEOTECHNICAL SECTION			
APPROVAL RECOMMENDED:		APPROVED:	
CHIEF, ENGINEERING BRANCH		CHIEF, PLANNING/ENG	

18

ILT	5/11/98	
DESCRIPTION	DATE	APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

SONOMA COUNTY

CALIFORNIA

SONOMA BAYLANDS
WETLAND DEMONSTRATION

TITLE SHEET

SECTION	APPROVED:	DATE:
ENDED:		
ENGINEERING BRANCH	CHIEF, PLANNING/ENGINEERING DIVISION	
APPROVED:	SCALE: NONE	JOB NO.:

19

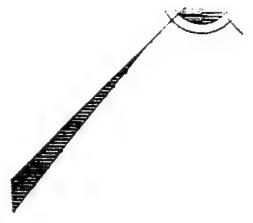
PAC



HWY 580



20



	AS-BUILT	
SYMBOL	DESCRIPTION	
REVISIONS		
		U.S. ARM S/
DRAWN BY: BYL		SONOMA COUNTY SONOMA WETLAND DEM TITLE :
CHECKED BY: SC & SM		
DESIGNED BY: SC		
PROJECT COORDINATOR		
SUBMITTED:		
CHIEF. GEOTECHNICAL SECTION		
APPROVAL RECOMMENDED:		APPROVED:
CHIEF. ENGINEERING BRANCH		CHIEF. PLANNING/ENG
APPROVED:		SCALE:
LT. COLONEL, C.E., DISTRICT ENGINEER		SHEET:

UILT			
		5/11/98	
DESCRIPTION		DATE	APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
 CORPS OF ENGINEERS
 SAN FRANCISCO, CALIFORNIA

SONOMA COUNTY

CALIFORNIA

SONOMA BAYLANDS
 WETLAND DEMONSTRATION

TITLE SHEET

SECTION
 OR
 INDEXED:

APPROVED:	DATE:
CHIEF, PLANNING/ENGINEERING DIVISION	

ENGINEERING BRANCH

APPROVED:

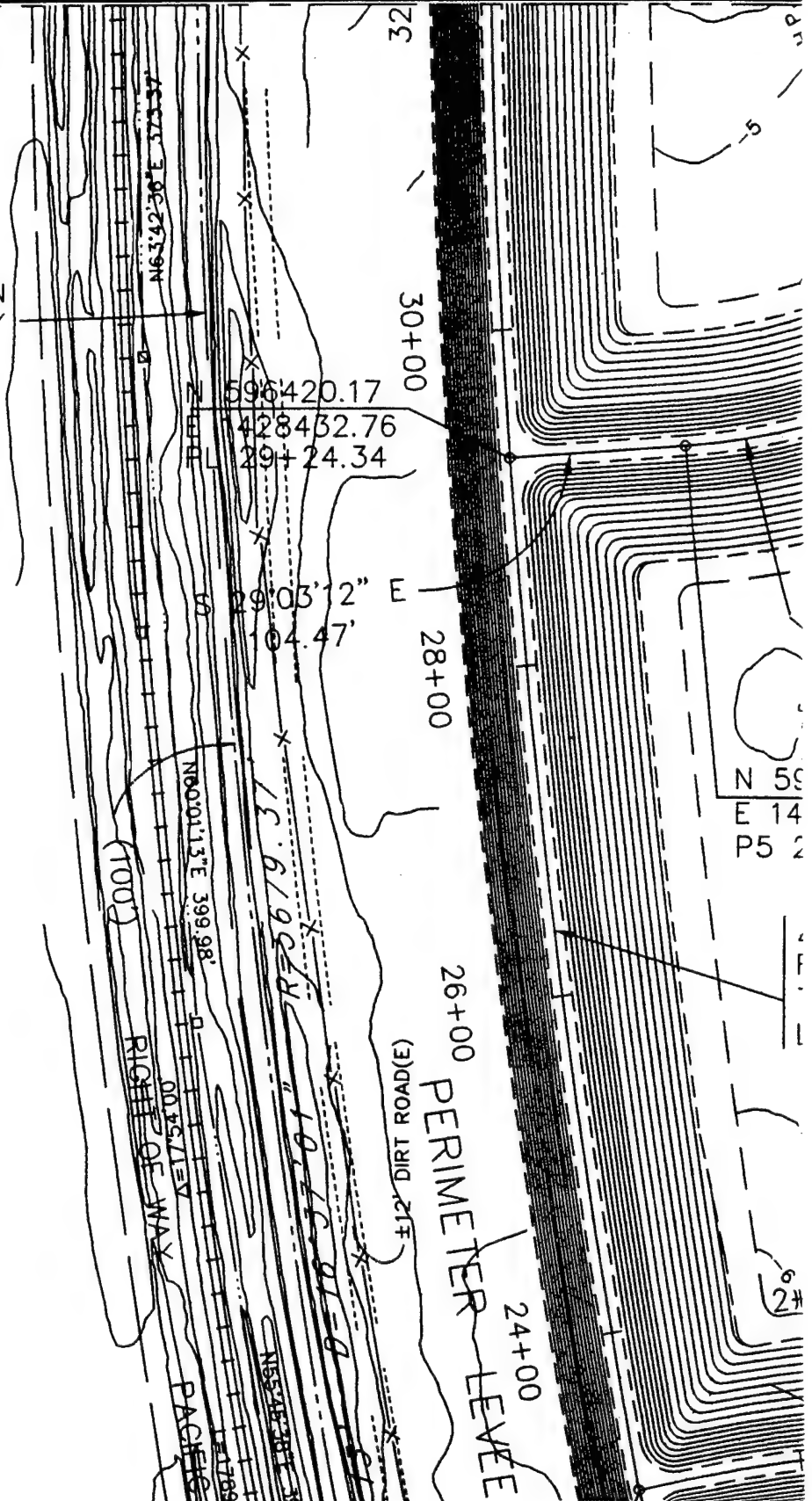
SCALE: NONE	JOB NO.:
DRAWING NUMBER	

EL. C.E., DISTRICT ENGINEER

SHEET: 1	155	57	2
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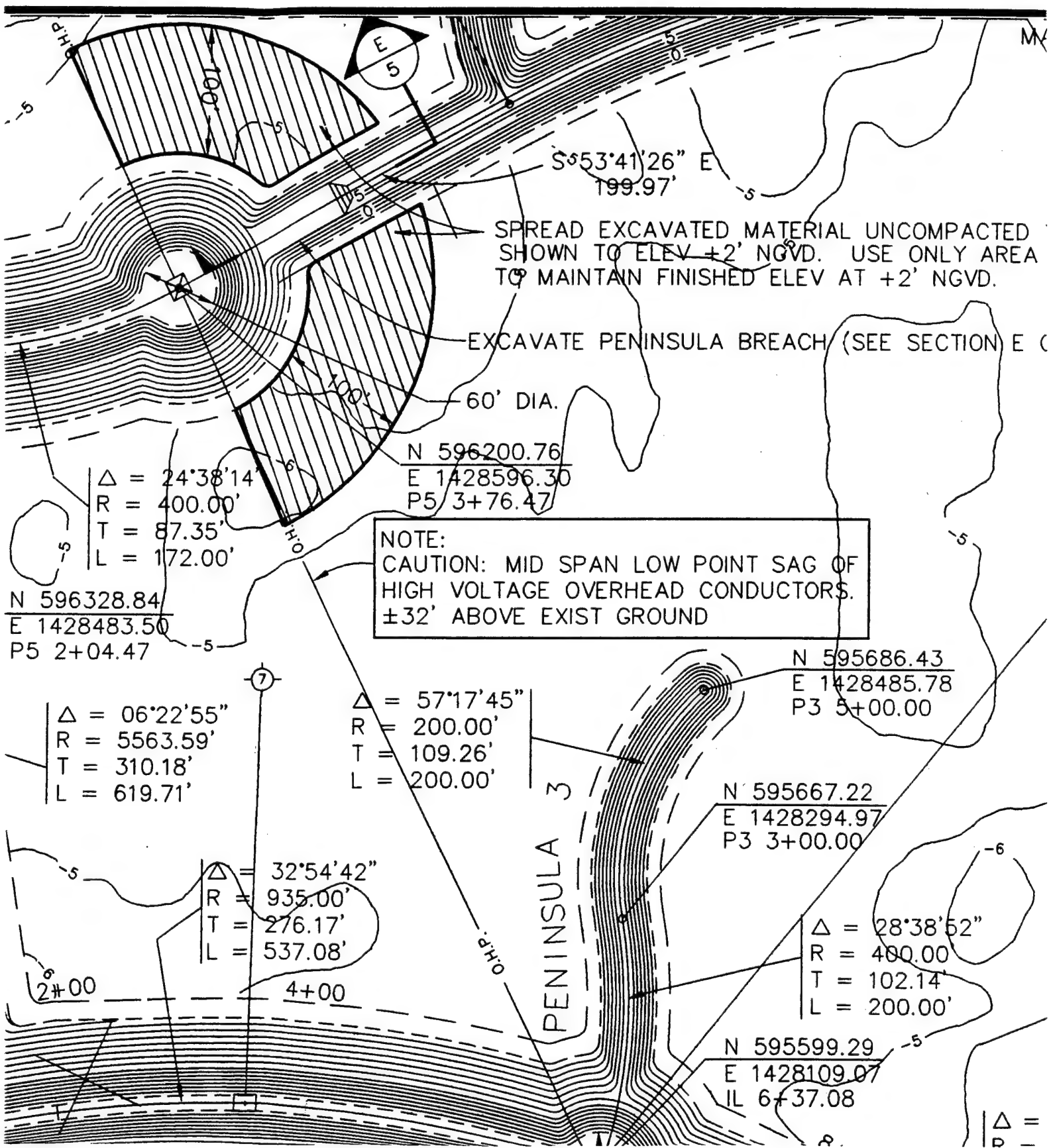
①

CONSTRUCTION
RIGHT OF WAY



N 59
E 14
P5 2

2



$\Delta = 24^{\circ}38'14''$
 $R = 400.00'$
 $T = 87.35'$
 $L = 172.00'$

N 596328.84
 E 1428483.50
 P5 2+04.47

N 596200.76
 E 1428596.30
 P5 3+76.47

$S 53^{\circ}41'26'' E$
 199.97'

N 595686.43
 E 1428485.78
 P3 5+00.00

N 595667.22
 E 1428294.97
 P3 3+00.00

$\Delta = 28^{\circ}38'52''$
 $R = 400.00'$
 $T = 102.14'$
 $L = 200.00'$

N 595599.29
 E 1428109.07
 IL 6+37.08

$\Delta = 57^{\circ}17'45''$
 $R = 200.00'$
 $T = 109.26'$
 $L = 200.00'$

$\Delta = 32^{\circ}54'42''$
 $R = 935.00'$
 $T = 276.17'$
 $L = 537.08'$

$\Delta =$
 $R =$

3

MATCH LINE SEE SHEET C-2

COMPACTED WITHIN AREAS
ONLY AREA NECESSARY
2' NGVD.

SECTION E ON DWG SHT 5

CENTRAL EAST-
WEST BASELINE

N 595203.91
E 1428988.23
P4 13+13.08

N 594970.
E 1428816
P4 10+23

PHASE II

PENINSULA

6.43
35.78
.00

3'38'52"
0.00
2.14
0.00'

3498.56'

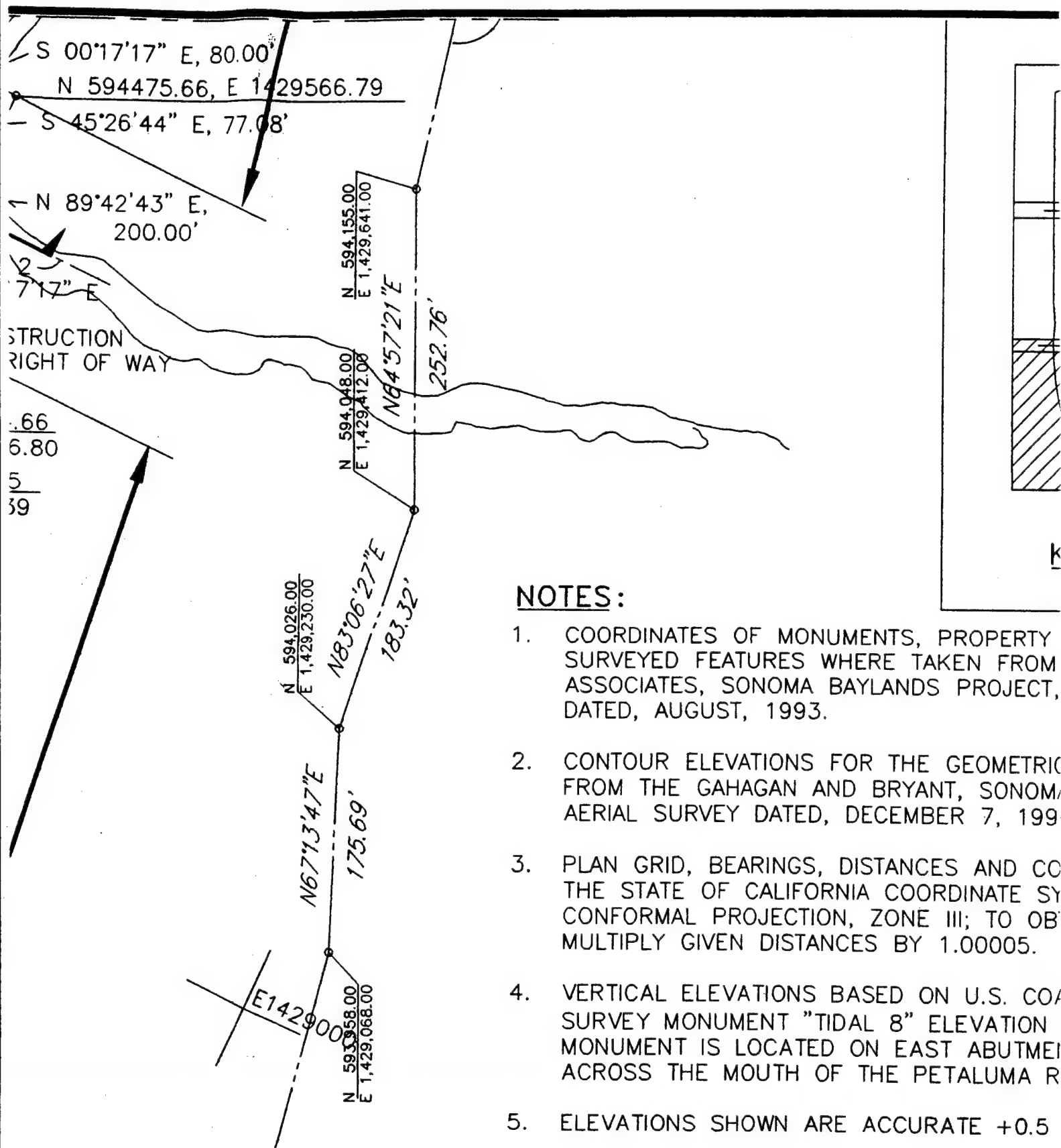
N64°24'57"E

$\Delta = 31'04'36"$
P - 035.00'

$\Delta = 102'$
P - 350'

EVEE TO +4.0' NGVD

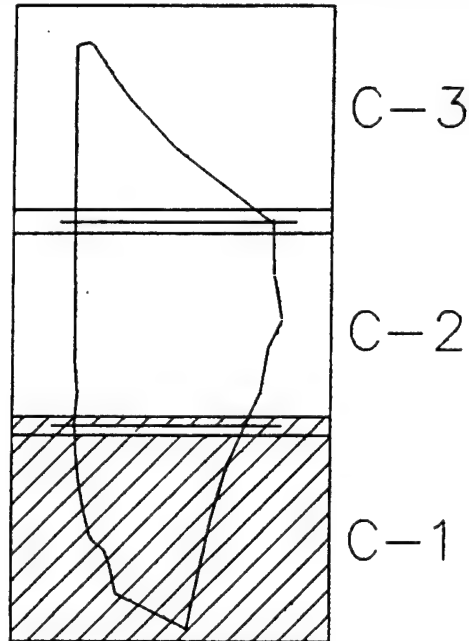
5



NOTES:

1. COORDINATES OF MONUMENTS, PROPERTY SURVEYED FEATURES WHERE TAKEN FROM ASSOCIATES, SONOMA BAYLANDS PROJECT, DATED, AUGUST, 1993.
2. CONTOUR ELEVATIONS FOR THE GEOMETRIC FROM THE GAHAGAN AND BRYANT, SONOMA, AERIAL SURVEY DATED, DECEMBER 7, 199
3. PLAN GRID, BEARINGS, DISTANCES AND CO THE STATE OF CALIFORNIA COORDINATE SY CONFORMAL PROJECTION, ZONE III; TO OB MULTIPLY GIVEN DISTANCES BY 1.00005.
4. VERTICAL ELEVATIONS BASED ON U.S. CO/ SURVEY MONUMENT "TIDAL 8" ELEVATION MONUMENT IS LOCATED ON EAST ABUTME/ ACROSS THE MOUTH OF THE PETALUMA R
5. ELEVATIONS SHOWN ARE ACCURATE +0.5

⑥



KEY PLAY

IS:

COORDINATES OF MONUMENTS, PROPERTY LINES, BASE LINES AND SURVEYED FEATURES WERE TAKEN FROM THE TRONOFF AND ASSOCIATES, SONOMA BAYLANDS PROJECT, TOPOGRAPHIC SURVEY DATED, AUGUST, 1993.

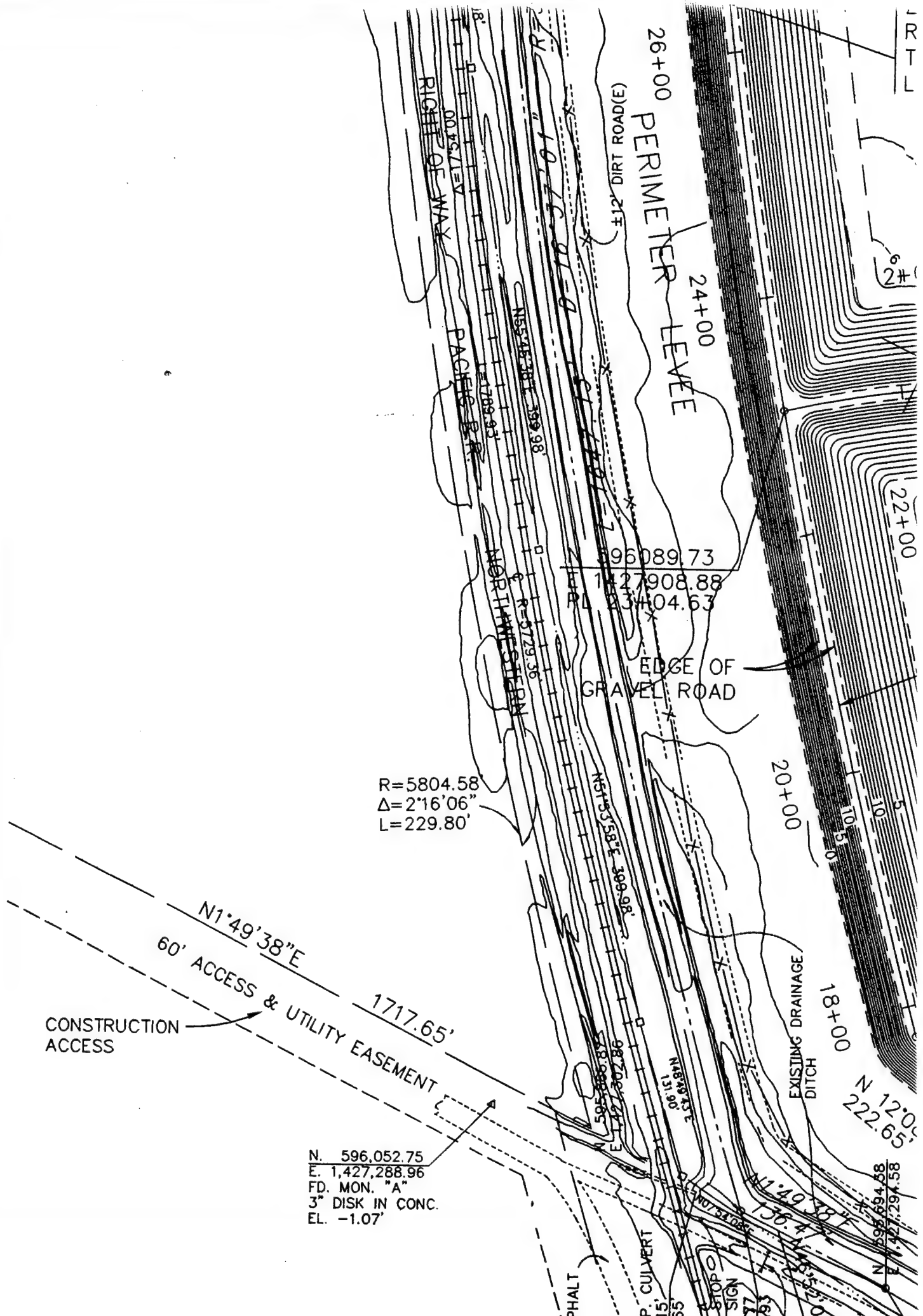
CONTOUR ELEVATIONS FOR THE GEOMETRIC DESIGN WERE TAKEN FROM THE GAHAGAN AND BRYANT, SONOMA BAYLANDS PROJECT, AERIAL SURVEY DATED, DECEMBER 7, 1990.

PLAN GRID, BEARINGS, DISTANCES AND COORDINATES BASED ON THE STATE OF CALIFORNIA COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE III; TO OBTAIN GROUND DISTANCES, MULTIPLY GIVEN DISTANCES BY 1.00005.

VERTICAL ELEVATIONS BASED ON U.S. COAST AND GEODETIC SURVEY MONUMENT "TIDAL 8" ELEVATION 6.16' N.G.V.D. MONUMENT IS LOCATED ON EAST ABUTMENT OF RAILROAD BRIDGE ACROSS THE MOUTH OF THE PETALUMA RIVER.

ELEVATIONS SHOWN ARE ACCURATE +0.5 FOOT.

7



R = 5563.59'
T = 310.18'
L = 619.71'

R = 200.00'
T = 109.26'
L = 200.00'

$\Delta = 32^\circ 54' 42''$
R = 935.00'
T = 276.17'
L = 537.08'

N 595667.22
E 1428294.97
P3 3+00.00

$\Delta = 28^\circ 38' 52''$
R = 480.00'
T = 102.14'
L = 200.00'

N 595599.29
E 1428109.07
IL 6+37.08

$\Delta = 05^\circ 26' 53''$
R = 5575.07'
T = 265.26'
L = 530.12'

NOTE:
CAUTION: MID SPAN LOW POINT SAG
OF HIGH VOLTAGE OVERHEAD
CONDUCTORS. $\pm 32'$ ABOVE
EXIST GROUND

PERIMETER
LEVEE PT #5
N 595762.35
E 1427492.18
PL 17+74.51

N 595420.80
E 1427700.48
P2 4+00.00

N 595105.64
E 1428023.97
IL 11+44.22

$\Delta = 57^\circ 17' 45''$
R = 200.00'
T = 109.26'
L = 200.00'

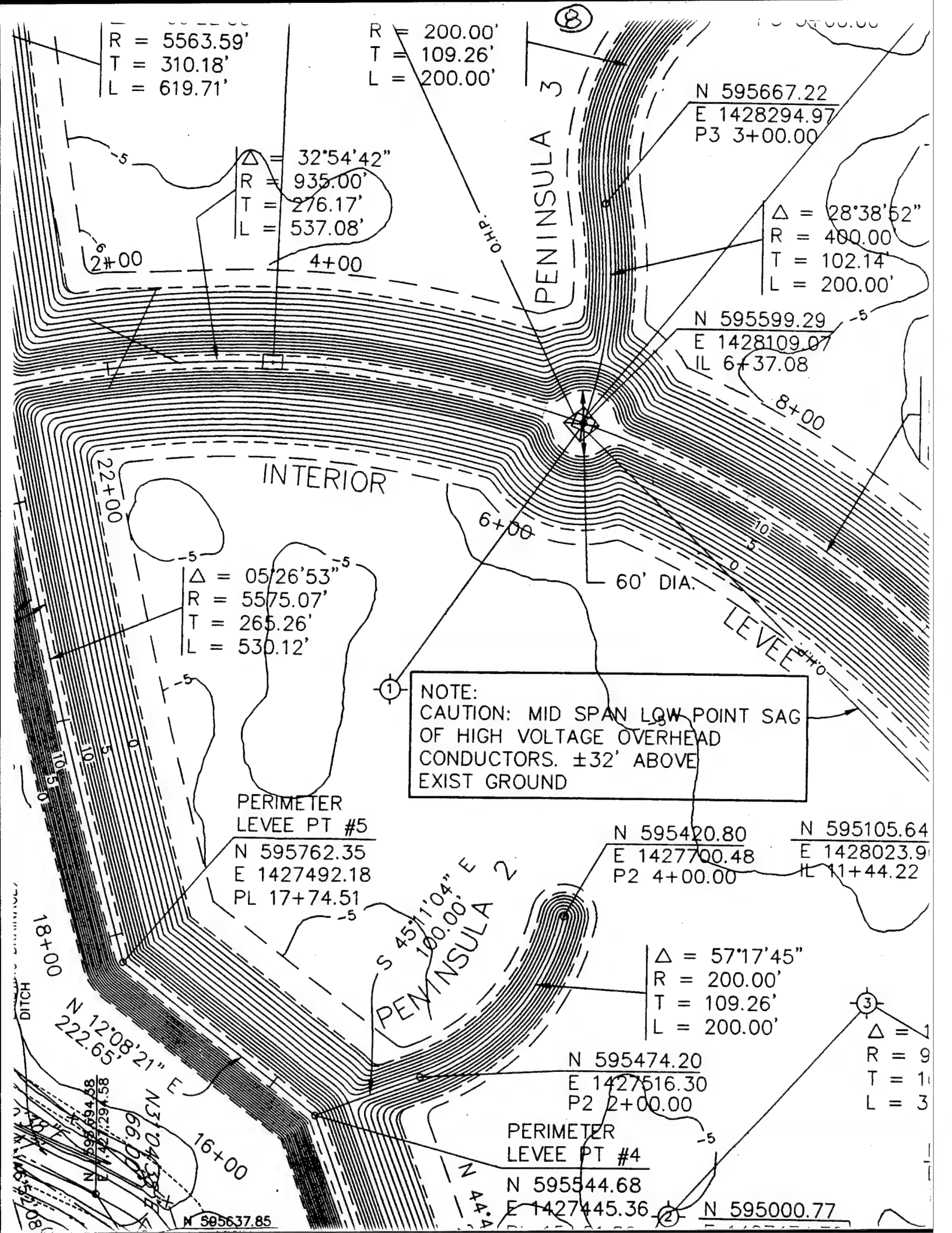
N 595474.20
E 1427516.30
P2 2+00.00

PERIMETER
LEVEE PT #4

N 595544.68
E 1427445.36

N 595000.77

$\Delta = 1^\circ$
R = 9'
T = 1'
L = 3'



9

PHASE II

PENINSULA

5+00.00

7.22
14.97
00

= 28°38'52"
= 400.00
= 102.14'
= 200.00'

3.29
9.07
08

Δ = 31°04'36"
R = 935.00'
T = 259.97'
L = 507.14'

Δ = 22°55'06"
R = 500.00'
T = 101.36'
L = 200.00'

Δ =
R =
T =
L =

N 594943.89
E 1428273.39
P4 4+00.00

N 595048.51
E 1428142.30
P4 2+31.00

N 595062.86
E 1428114.29
P4 2+00.00

S 64°40'21" E
100.00'

N 595105.64
E 1428023.90
IL 11+44.22

5"

3

Δ = 19°42'09"
R = 935.00'
T = 162.36'
L = 321.52'

N 594844.14
E 1427839.57
IL 14+65.74

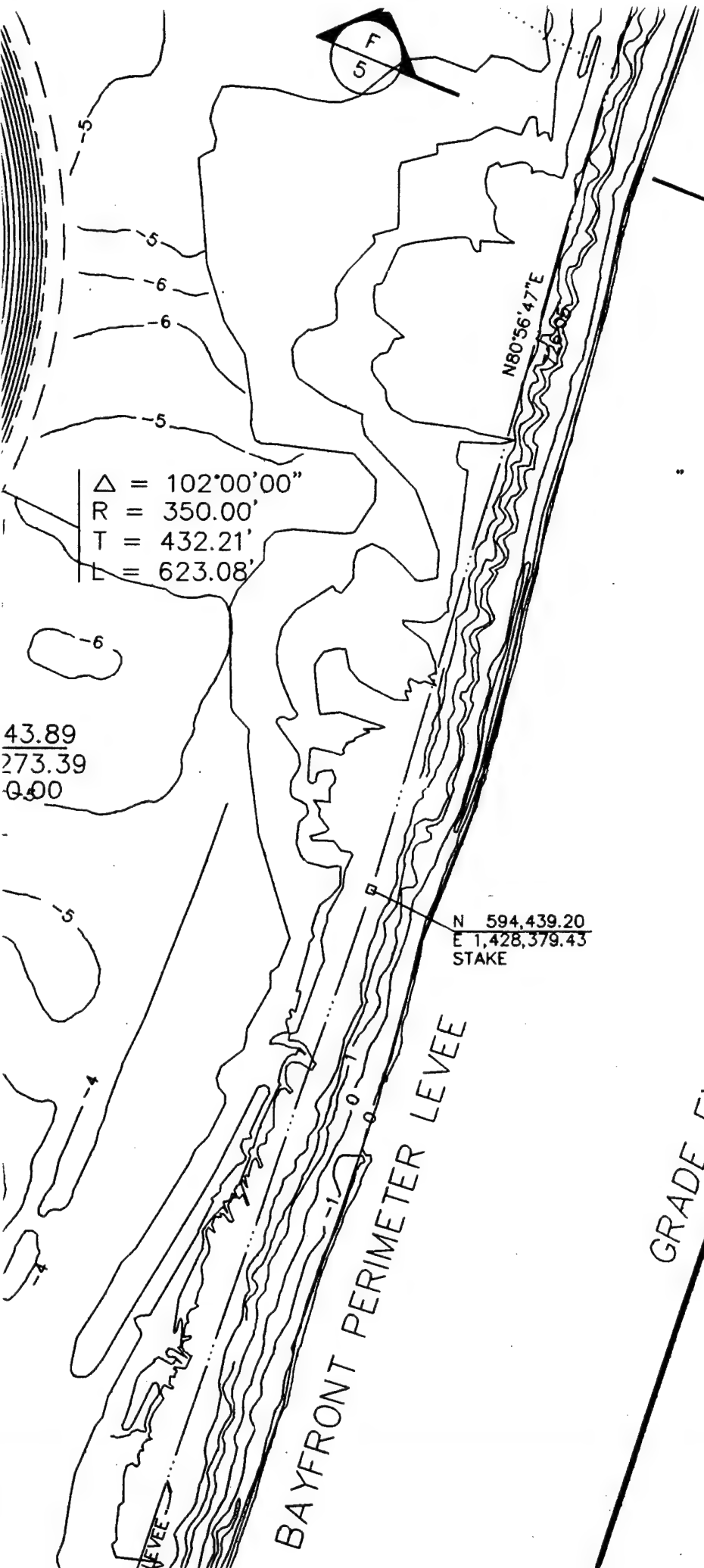
00.77

CONCRETE PAD

60' DIA
16+00

S 06°

10



$\Delta = 102^{\circ}00'00''$
 $R = 350.00'$
 $T = 432.21'$
 $L = 623.08'$

43.89
273.39
0.00

N 594,439.20
E 1,428,379.43
STAKE

BAYFRONT PERIMETER LEVEE

GRADE EXISTING BAYFRONT PERIMETER LEVEE TO +4.0' NGVD

N 593,831.00
E 1,428,384.00

'54"E
27'

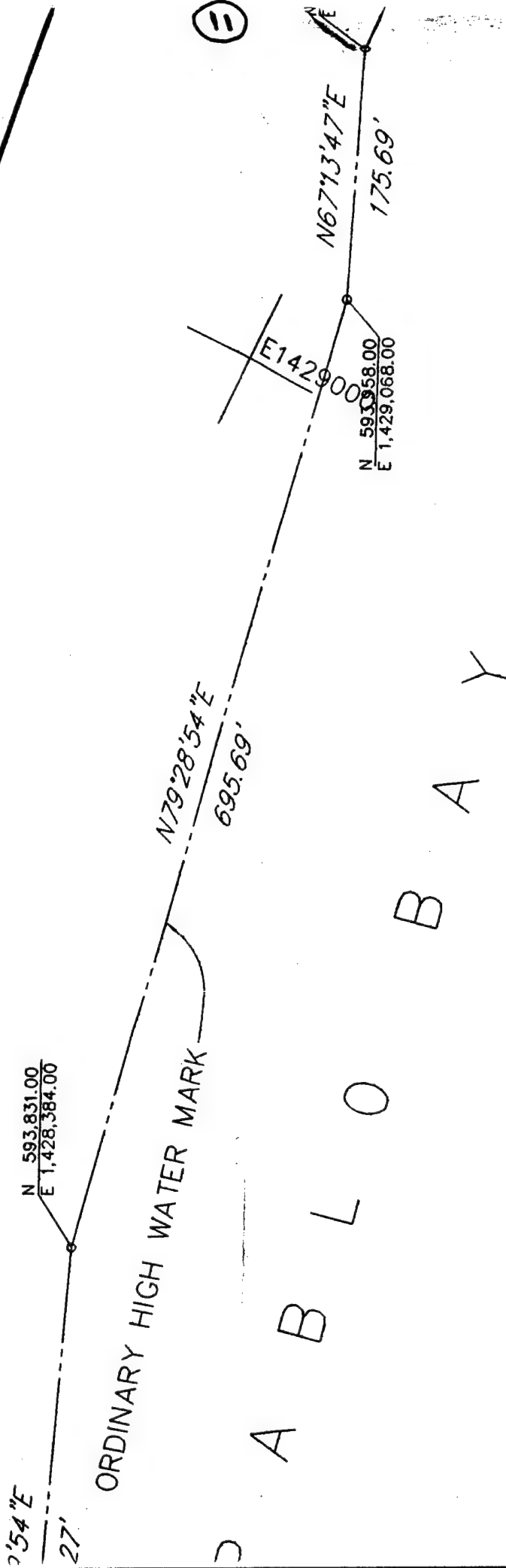
(11)

ASSOCIATED LANDS
DATED, AUGUST, 1993.

2. CONTOUR ELEVATIONS FOR THE GEOMETRY FROM THE GAHAGAN AND BRYANT, SONOMA AERIAL SURVEY DATED, DECEMBER 7, 1993.
3. PLAN GRID, BEARINGS, DISTANCES AND COORDINATES TO THE STATE OF CALIFORNIA COORDINATE SYSTEM, CONFORMAL PROJECTION, ZONE III; TO OBTAIN MULTIPLY GIVEN DISTANCES BY 1.00005.
4. VERTICAL ELEVATIONS BASED ON U.S. COAST AND GEODETIC SURVEY MONUMENT "TIDAL 8" ELEVATION MONUMENT IS LOCATED ON EAST ABUTMENT ACROSS THE MOUTH OF THE PETALUMA RIVER.
5. ELEVATIONS SHOWN ARE ACCURATE ± 0.5 FEET.
6. FINISHED BORROW CONTOURS ARE APPROXIMATE TO SPECIFICATION SECTION 2210.
7. RESTRICTED WORK / ENDANGERED SPECIES MAY BE PERFORMED BETWEEN THE DATES OF AUGUST 1ST THROUGH AUGUST 31ST.

LEGEND:

CL	CENTERLINE
C.M.P.	CORRUGATED METAL PIPE
EL.	ELEVATION
F.L.	FLOW LINE
I.P.	IRON PIPE
FD.	FOUND
R.R.	RAILROAD
T.R.	TOP OF RAIL
—5—	EXISTING CONTOUR
—10—	NEW CONTOUR
—O.H.P.—	OVERHEAD POWER LINE
—...—	SURVEY BASE LINE
—X—	FENCE LINE



DATED, AUGUST, 1993.

(12)

ONTOUR ELEVATIONS FOR THE GEOMETRIC DESIGN WERE TAKEN FROM THE GAHAGAN AND BRYANT, SONOMA BAYLANDS PROJECT, AERIAL SURVEY DATED, DECEMBER 7, 1990.

PLAN GRID, BEARINGS, DISTANCES AND COORDINATES BASED ON THE STATE OF CALIFORNIA COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE III; TO OBTAIN GROUND DISTANCES, MULTIPLY GIVEN DISTANCES BY 1.00005.

VERTICAL ELEVATIONS BASED ON U.S. COAST AND GEODETIC SURVEY MONUMENT "TIDAL 8" ELEVATION 6.16' N.G.V.D. MONUMENT IS LOCATED ON EAST ABUTMENT OF RAILROAD BRIDGE CROSS THE MOUTH OF THE PETALUMA RIVER.

ELEVATIONS SHOWN ARE ACCURATE +0.5 FOOT.

FINISHED BORROW CONTOURS ARE APPROXIMATE. SEE SPECIFICATION SECTION 2210.

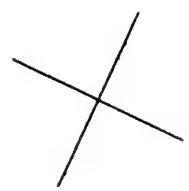
RESTRICTED WORK / ENDANGERED SPECIES AREA. NO WORK MAY BE PERFORMED BETWEEN THE DATES OF FEBRUARY 1ST THROUGH AUGUST 31ST.

END:

..... CENTERLINE
2. CORRUGATED METAL PIPE
..... ELEVATION
..... FLOW LINE
..... IRON PIPE
..... FOUND
3. RAILROAD
..... TOP OF RAIL
--5-- EXISTING CONTOUR
--10-- NEW CONTOUR
O.H.P. --- OVERHEAD POWER LINE
-...- SURVEY BASE LINE
- X --- FENCE LINE

13

N. 596,052.75
E. 1,427,288.96
FD. MON. "A"
3" DISK IN CONC.
EL. -1.07'



18' ASPHALT ROAD

30" C.M.P. CULVERT
TOP -4.15'
INV. -6.65'

(150' R/N)

STOP SIGN

15' GATE ON DIRT ROAD

GATE

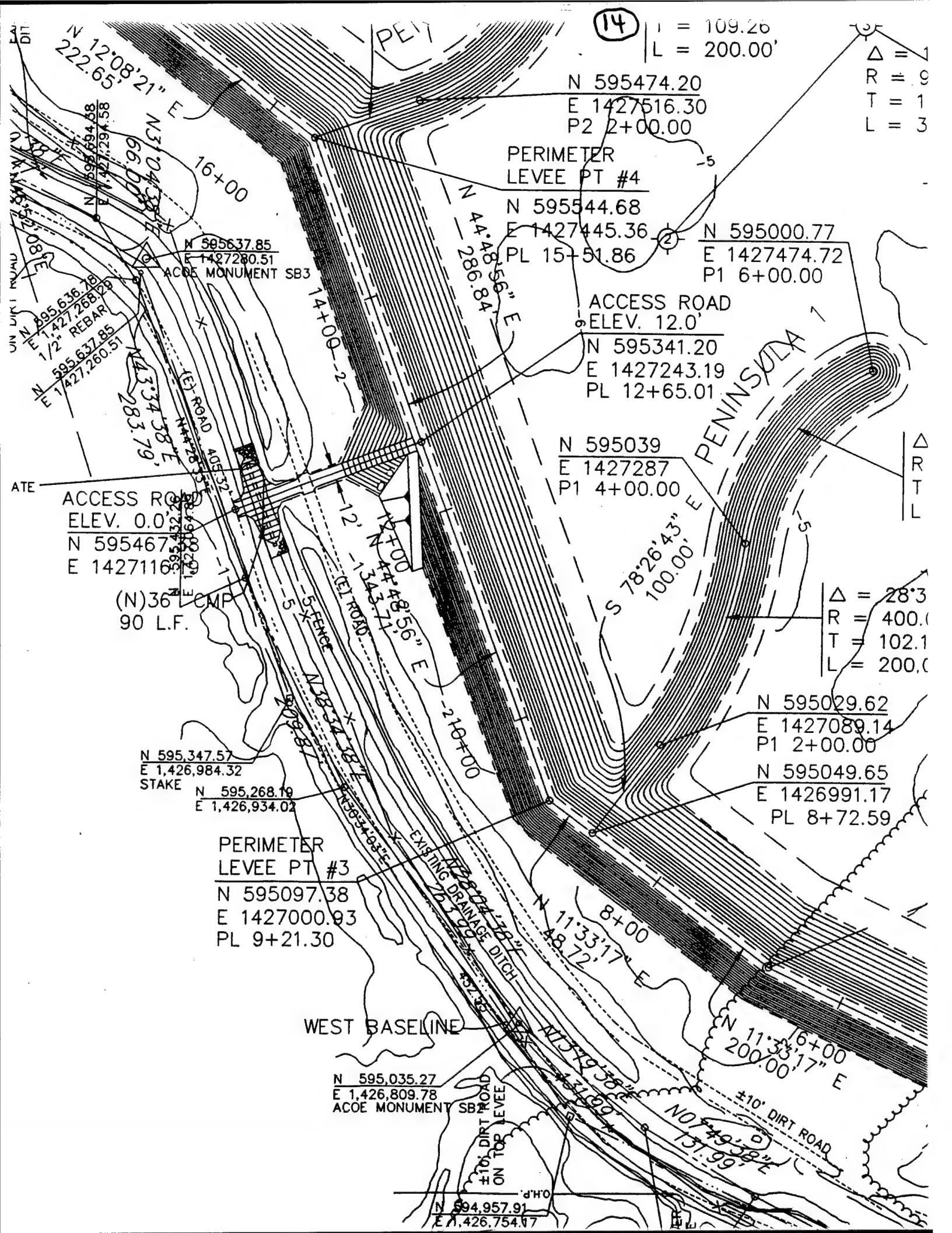
ACCI
ELE
N 5
E 1

222.6'

N 595,830.77
E 1,427,298.83

N 595,636.78
E 1,427,268.00
1/2" REBAR

N 595,637.8
E 1,427,260



14

I = 109.26
L = 200.00'

$\Delta = 1$
R = 9
T = 1
L = 3

N 595474.20
E 1427516.30
P2 2+00.00

PERIMETER
LEVEE PT #4

N 595544.68
E 1427445.36
PL 15+51.86

N 595000.77
E 1427474.72
P1 6+00.00

ACCESS ROAD
ELEV. 12.0'

N 595341.20
E 1427243.19
PL 12+65.01

N 595039
E 1427287
P1 4+00.00

PENINSULA

$\Delta = 28.3$
R = 400.0
T = 102.1
L = 200.0

N 595029.62
E 1427089.14
P1 2+00.00

N 595049.65
E 1426991.17
PL 8+72.59

N 595,347.57
E 1,426,984.32
STAKE
N 595,268.19
E 1,426,934.02

PERIMETER
LEVEE PT #3
N 595097.38
E 1427000.93
PL 9+21.30

N 595,035.27
E 1,426,809.78
ACOE MONUMENT SB3

N 594,957.91
E 1,426,754.17

$\Delta = 19^{\circ}42'09''$
 $R = 935.00'$
 $T = 162.36'$
 $L = 321.52'$

$N\ 594844.14$
 $E\ 1427839.57$
 $IL\ 14+65.74$

CONCRETE PAD
 $\Delta = 51^{\circ}21'46''$
 $R = 500.00'$
 $T = 240.43'$
 $L = 448.23'$

$\Delta = 57^{\circ}17'45''$
 $R = 200.00'$
 $T = 109.26'$
 $L = 200.00'$

$\Delta = 28^{\circ}38'52''$
 $R = 400.00'$
 $T = 102.14'$
 $L = 200.00'$

$N\ 594435.25$
 $E\ 1427695.99$
 $IL\ 19+13.97$

$N\ 594374.62$
 $E\ 1427702.72$
 $IL\ 19+75.24$

$N\ 594562.56$
 $E\ 1427429.04$
 STAKE
 $N\ 594464$
 $E\ 1427332$

$N\ 594409$
 $E\ 142740$

95029.62
 427089.14
 $2+00.00$
 95049.65
 426991.17
 $8+72.59$

PERIMETER
 LEVEE PT #2
 $N\ 594853.70$
 $E\ 1426957.11$
 $PL\ 6+72.59$

TRAPEZOIDAL
 $S\ 06^{\circ}19'57''$

$6+00$
 $17''\ E$
 $4+00$
 $00^{\circ}21'44''\ W$
 $572.59'$
 ROAD

TOE OF SLOPE

$N\ 594381$
 $E\ 1427048$

$33^{\circ}40'03''\ E$

$N\ 73^{\circ}48'06''\ E$
 296

$88'$
 $S\ 51^{\circ}19'57''\ E$

$N83^{\circ}40'03''\ E$
 16+3.50

CONS' RIGHT

TOP OF LEVEE
 MARSH

60' DIA
 16+00

15

3

5

4

6

16

EXISTING BAYFRONT PERM

TOP OF VEVE

WASH

N 38°02'06" E
111.79'

N 594284.81
E 1427711.18

O.H.P.

CONSTRUCTION
RIGHT OF WAY

TRAPEZOIDAL CHANNEL
S 06°19'57" E

LEVEE GRADE TO +4.0' NGVD

NOTE:
CAUTION: MID SPAN LOW POINT SAG
OF HIGH VOLTAGE OVERHEAD CONDUCTORS.
32'± ABOVE EXIST GROUND.

E1428000

N 593,529.00
E 1,427,602.00

N 43°20'23"E
195.24'

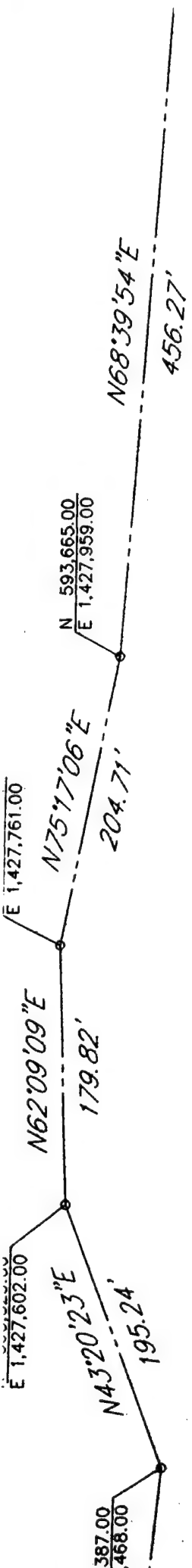
N 62°09'09"E
179.82'

N 593,613.00
E 1,427,761.00

N 75°17'06"E
204.71'

N 593,665.00
E 1,427,959.00

N 68°39'54"E



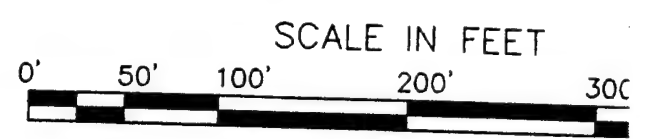
ORDINARY HIGH

S A N

P A B

- (17)
- 10 NEW CONTOUR
- O.H.P. OVERHEAD POWER LINE
- ... SURVEY BASE LINE
- X FENCE LINE
- SET 2"X2" STAKE
- SET REBAR
- ⊗ PG & E TOWER
- △ ACOE MONUMENT
- ⊕ RESISTIVITY PROBE AN
- MONITORING STATION

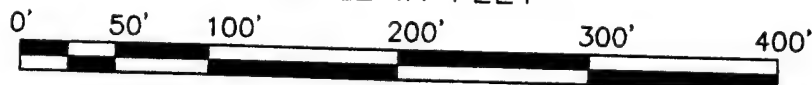
- PT POINT OF TANGENCY
- PL PERIMETER LEVEE STA
- IL INTERIOR LEVEE STATI
- P PENINSULA STATION
- N.I.C. NOT IN CONTRACT



SYMBOL	DESCRIPTION
REVISIONS	
U.S. ARMY ENG CO SAN	
DRAWN BY: BYL	SONOMA COUNTY
CHECKED BY: SC & SM	SONOMA BAY LEVEE BREACH
DESIGNED BY:	

- 10 — NEW CONTOUR
- O.H.P. — OVERHEAD POWER LINE
- ... — SURVEY BASE LINE
- X — FENCE LINE
- SET 2"X2" STAKE
- SET REBAR
- PG & E TOWER _____
- ACOE MONUMENT _____
- RESISTIVITY PROBE AND CABLE
- MONITORING STATION
- POINT OF TANGENCY
- PERIMETER LEVEE STATION
- INTERIOR LEVEE STATION
- PENINSULA STATION
- NOT IN CONTRACT

SCALE IN FEET



DESCRIPTION	DATE	APPROVAL
REVISIONS		
	U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO CORPS OF ENGINEERS SAN FRANCISCO, CALIFORNIA	
SONOMA COUNTY	CALIFORNIA	
SONOMA BAYLANDS LEVEE BREACH PROJECT		

19

20

(N) 36° CMP
90 L.F.

$\Delta = 28'$
 $R = 400'$
 $T = 102'$
 $L = 200'$

N 595,347.57
E 1,426,984.32
STAKE
N 595,268.19
E 1,426,934.02

PERIMETER
LEVEE PT #3
N 595097.38
E 1427000.93
PL 9+21.30

N 595029.62
E 1427089.14
P1 2+00.00
N 595049.65
E 1426991.17
PL 8+72.59

WEST BASELINE

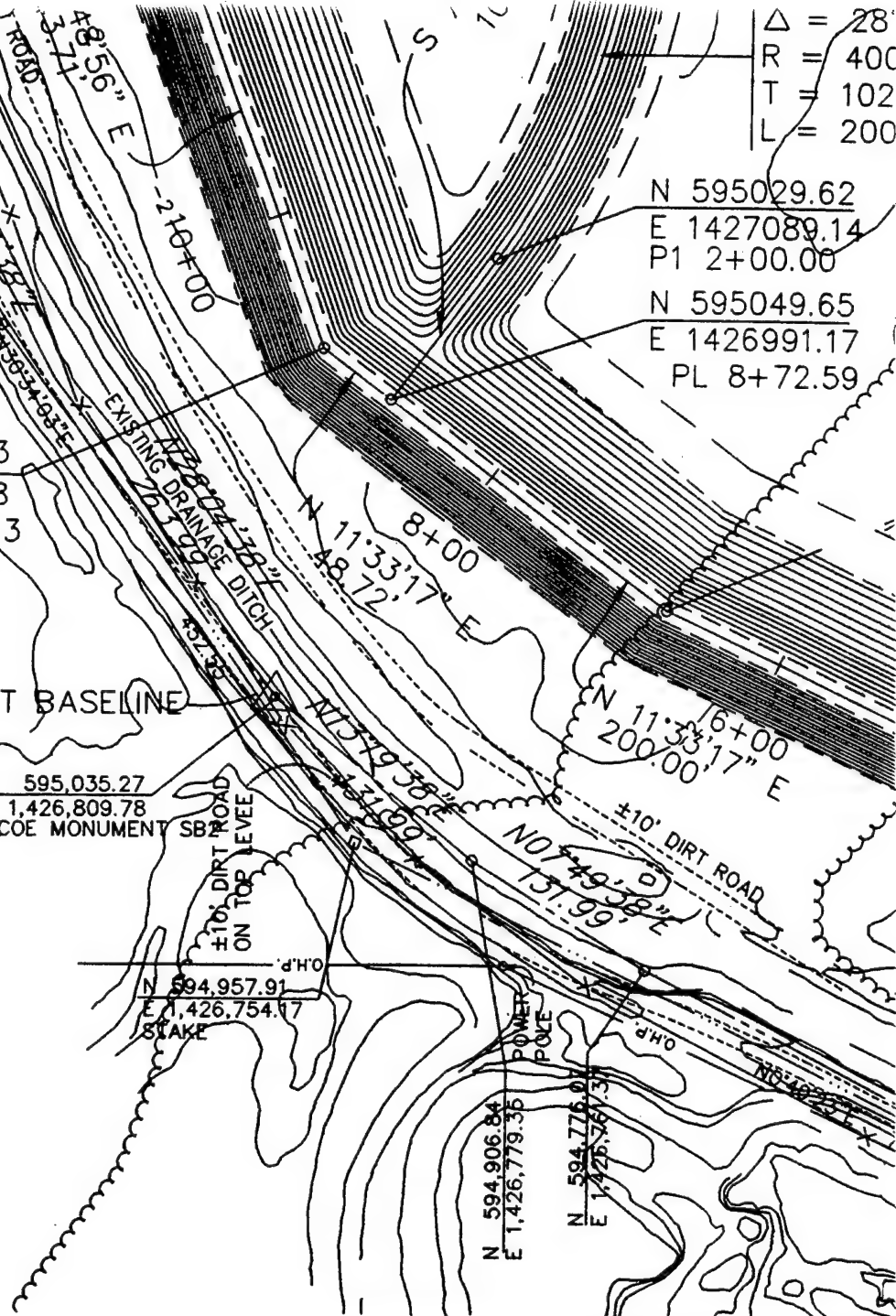
N 595,035.27
E 1,426,809.78
ACOE MONUMENT SB

±10' DIRT ROAD
ON TOP OF LEVEE

N 594,957.91
E 1,426,754.17
STAKE

N 594,906.84
E 1,426,779.36

N 594,776.01
E 1,426,761.31



$\Delta = 28^{\circ}38'52''$
 $R = 400.00'$
 $T = 102.14'$
 $L = 200.00'$

15029.62
 27089.14
 +00.00
 15049.65
 26991.17
 8+72.59

PILOT UNIT

IL 19+75.24 (21)

N 594562.56
 E 1427429.04
 STAKE
 N 594464
 E 1427332

PERIMETER
 LEVEE PT #2
 N 594853.70
 E 1426951.11
 PL 6+72.59

N 594409
 E 142740

CONST. RIGHT

TRAPEZOIDAL C
 S 06°19'57" E

TOE OF SLOPE

88'
 S 51°19'57" E
 N 73°48'06" E
 296

N 00°21'44" W
 572.59'

N 594381
 E 1427048

N 594200.87
 E 1426954.77

PERIMETER
 LEVEE PT #1
 N 594269.00
 E 1426946.00
 PL 1+00.00

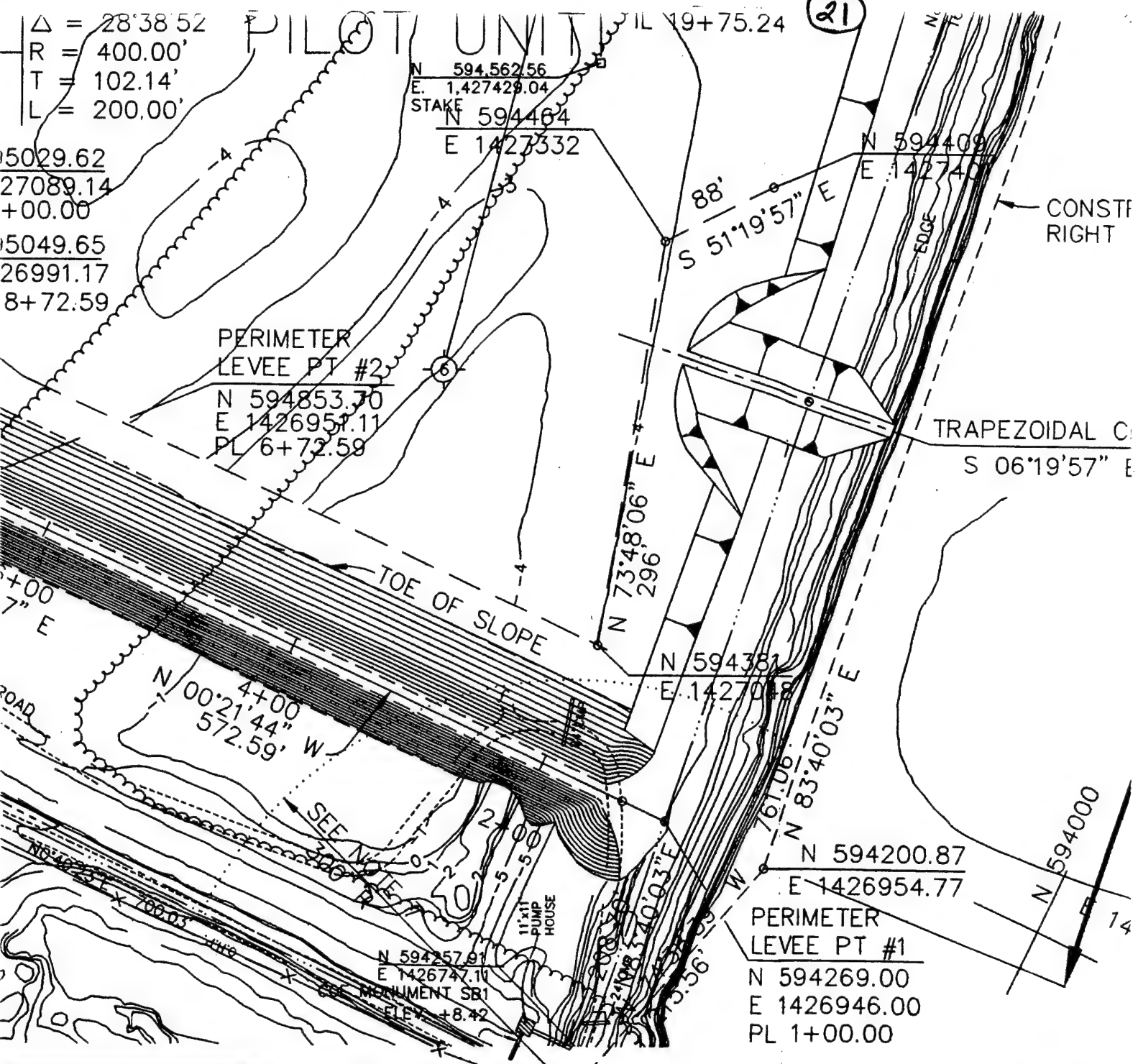
N 594257.91
 E 1426747.11
 MONUMENT SB1
 ELEV. +8.42

11'x11' PUMP HOUSE

ROAD

N 6°42'53" E
 700.03'

N 594000
 E 1426000



22

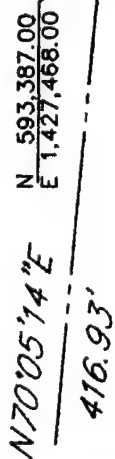
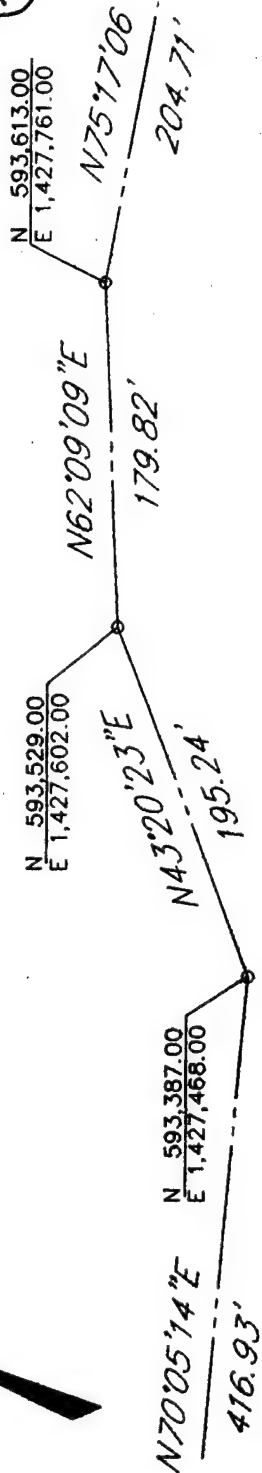
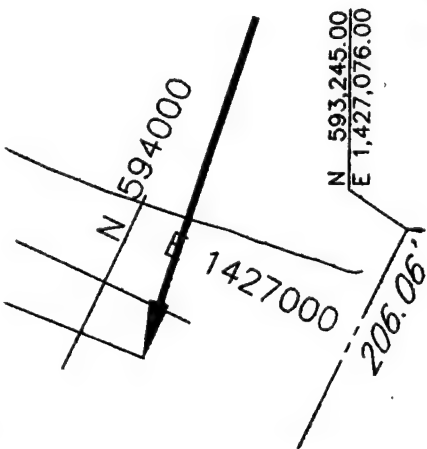
CAUTION: MD SPAN LOW POINT SAG
OF HIGH VOLTAGE OVERHEAD CONDUCTORS.
32'± ABOVE EXIST GROUND.

CONSTRUCTION
RIGHT OF WAY

LEVEE GRADE TO +4.0' NGVD

APEZOIDAL CHANNEL

S 06°19'57" E

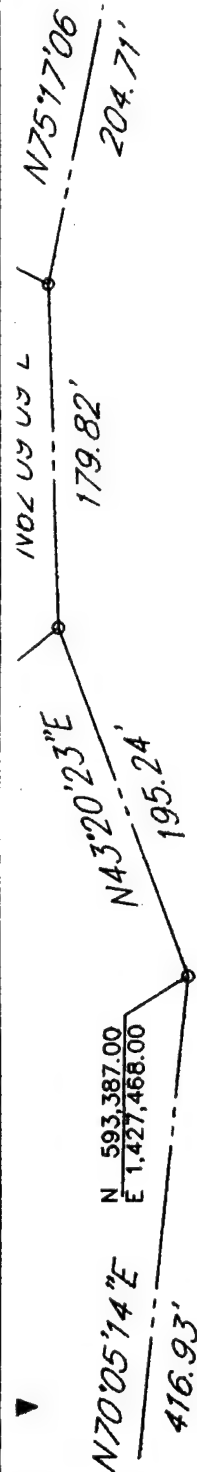


23

PT POINT OF TANGENCY
PL PERIMETER LEVEE STATIC
IL INTERIOR LEVEE STATION
P PENINSULA STATION
N.I.C. NOT IN CONTRACT

SCALE IN FEET

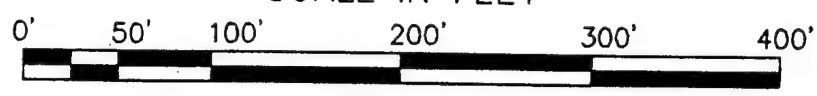
0' 50' 100' 200' 300'



SYMBOL	DESCRIPTION
REVISIONS	
U.S. ARMY ENGIN CORI SAN FR.	
DRAWN BY: BYL	SONOMA COUNTY
CHECKED BY: SC & SM	SONOMA BAY LEVEE BREACH F PLAN SHEET 1 O
DESIGNED BY: SC PROJECT COORDINATOR	
SUBMITTED:	
CHIEF, GEOTECHNICAL SECTION	
APPROVAL RECOMMENDED: CHIEF, ENGINEERING BRANCH	APPROVED: CHIEF, PLANNING/ENGINEERING DIVISION
PREPARED UNDER THE DIRECTION OF RICHARD G. THOMPSON LT. COLONEL, C.E., DISTRICT ENGINEER	
SCALE: 1" = 100'	
SHEET: 2	

- POINT OF TANGENCY
- PERIMETER LEVEE STATION
- INTERIOR LEVEE STATION
- PENINSULA STATION
- NOT IN CONTRACT

SCALE IN FEET



DESCRIPTION	DATE	APPROVAL

REVISIONS

	U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO CORPS OF ENGINEERS SAN FRANCISCO, CALIFORNIA
--	---

SONOMA COUNTY

CALIFORNIA

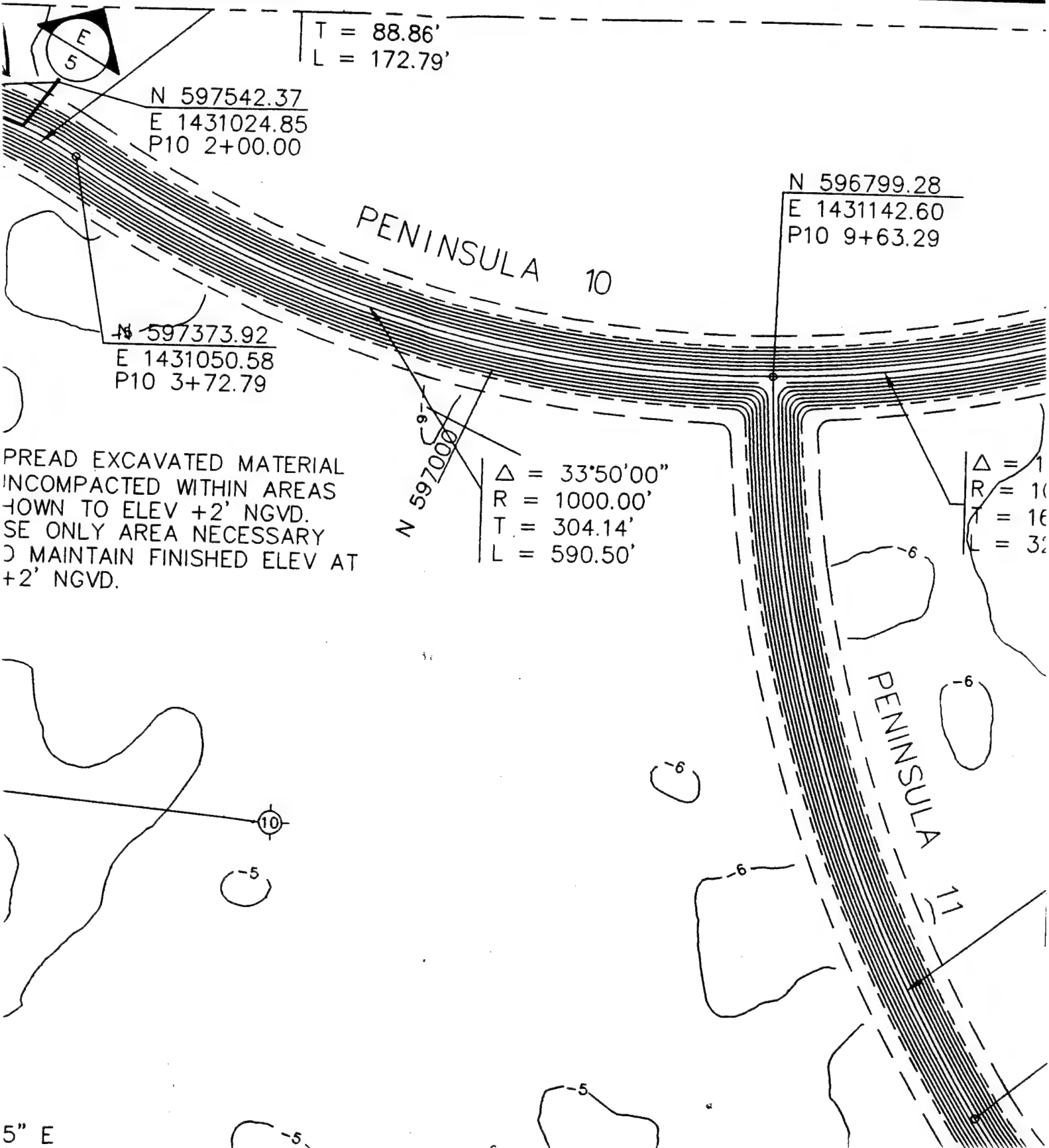
SONOMA BAYLANDS
LEVEE BREACH PROJECT

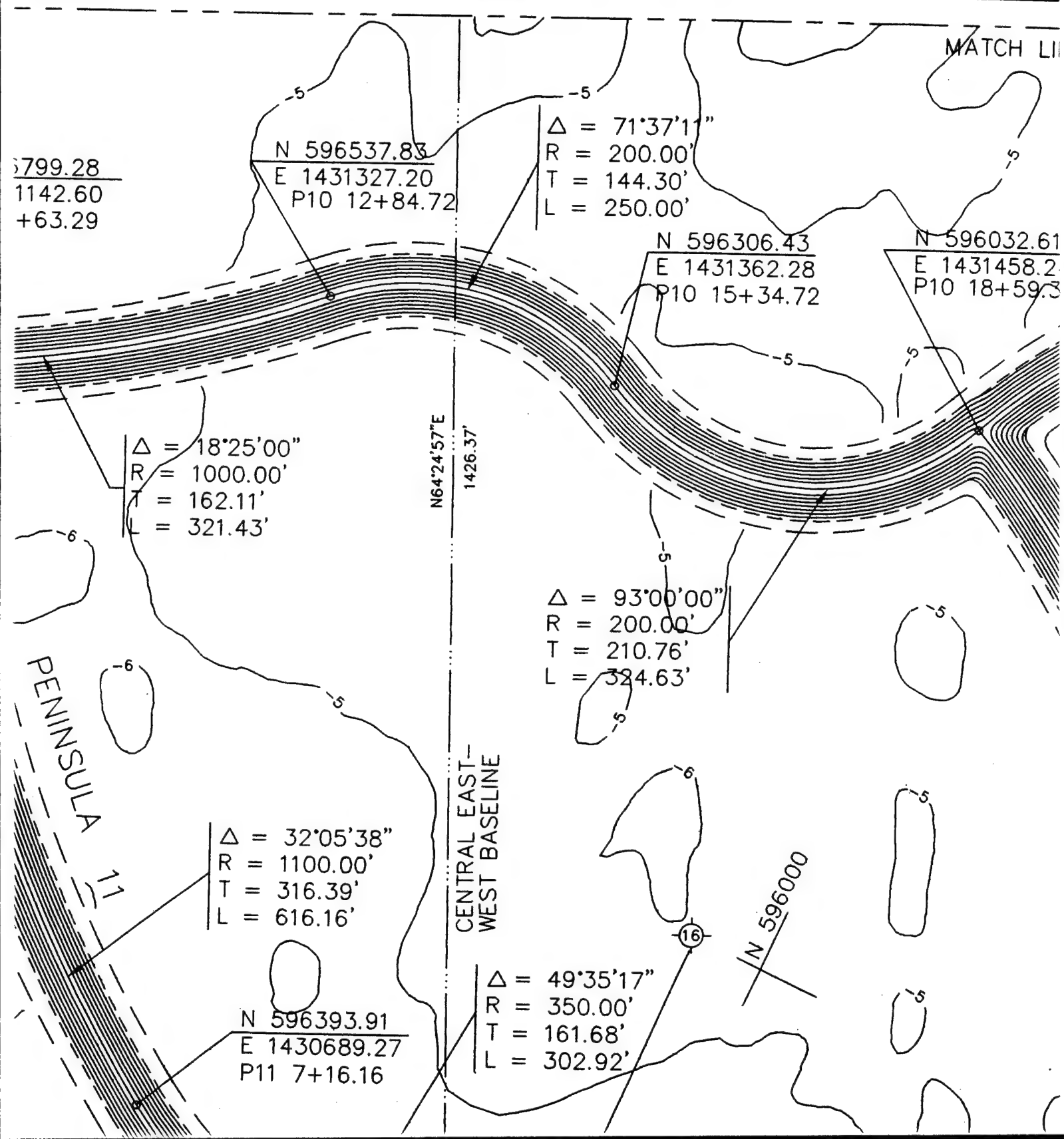
PLAN
SHEET 1 OF 3

DESIGNED:	APPROVED:	DATE:
ENGINEERING BRANCH	CHIEF, PLANNING/ENGINEERING DIVISION	
UNDER THE DIRECTION OF HAROLD G. THOMPSON C.E., DISTRICT ENGINEER	SCALE: 1" = 100'	JOB NO.:
	DRAWING NUMBER	
	SHEET: 2	155

S 25°10'55" E

2





4

MATCH LINE SEE SHEET C-3

WEIR No. 1
REMOVE EXIST WEIR. BACKFIL
COMPACT ALL VOIDS RESULT
REMOVAL & RELATED OPERAT
(SEE DWG SHT 6) UPON COM
SITE WILL BE GRADED AND RI
TO EXIST ELEVS, LINES & GR.
SEE DWG SHT 4.

N 596032.61
E 1431458.24
P10 18+59.35

PENINSULA 10

$\Delta = 73^{\circ}00'00''$
R = 500.00'
T = 369.98'
L = 637.05'

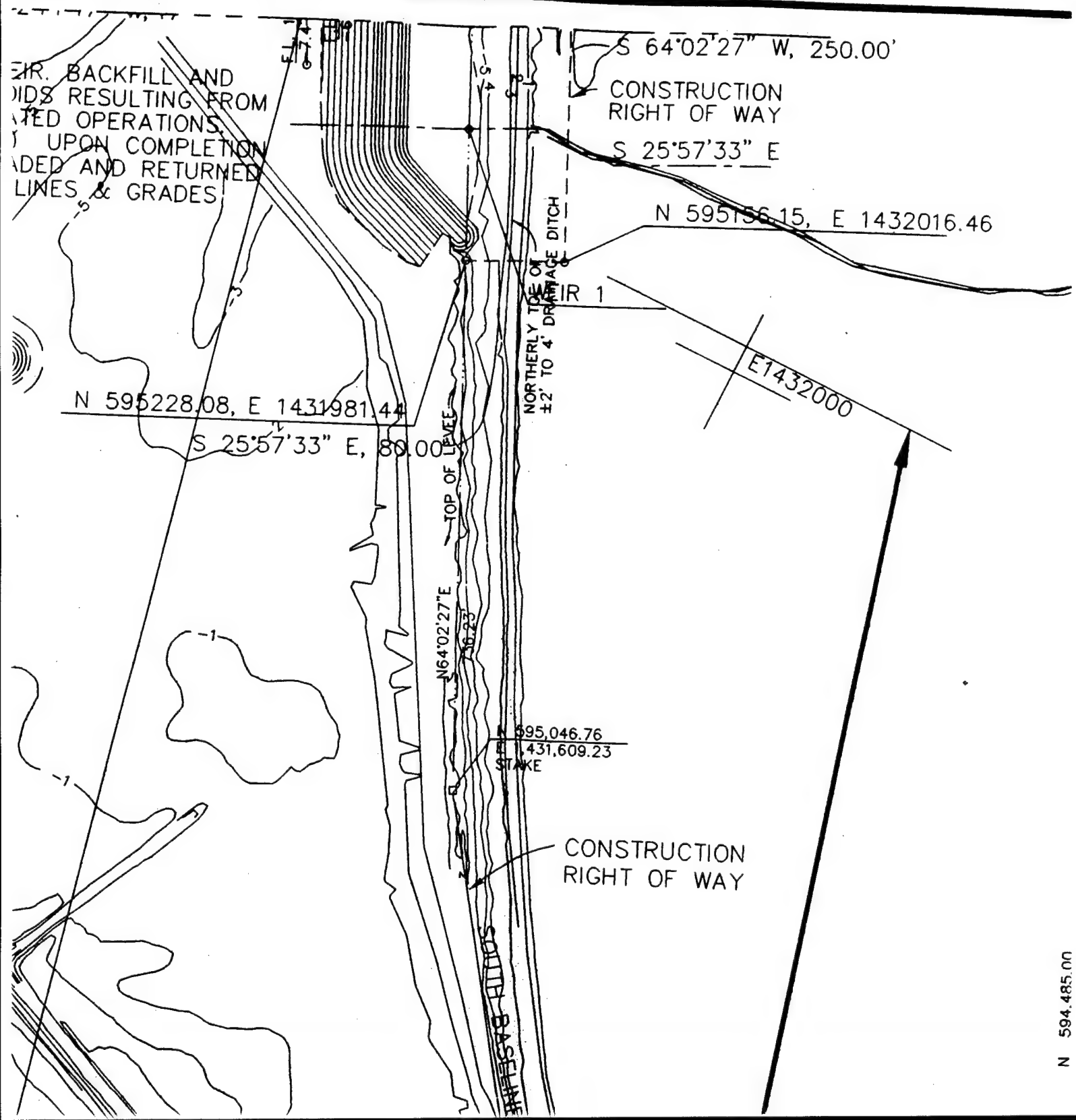
N 595513.94
E 1431749.45
P10 24+96.40

N 5952

$\Delta = 50^{\circ}44'12''$
R = 800.00'
T = 379.33'
L = 708.42'

PENINSULA 12

5

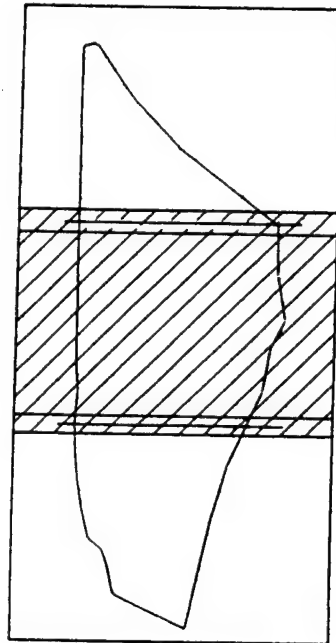


6

250.00'

5, E 1432016.46

32000



C-3

C-2

C-1

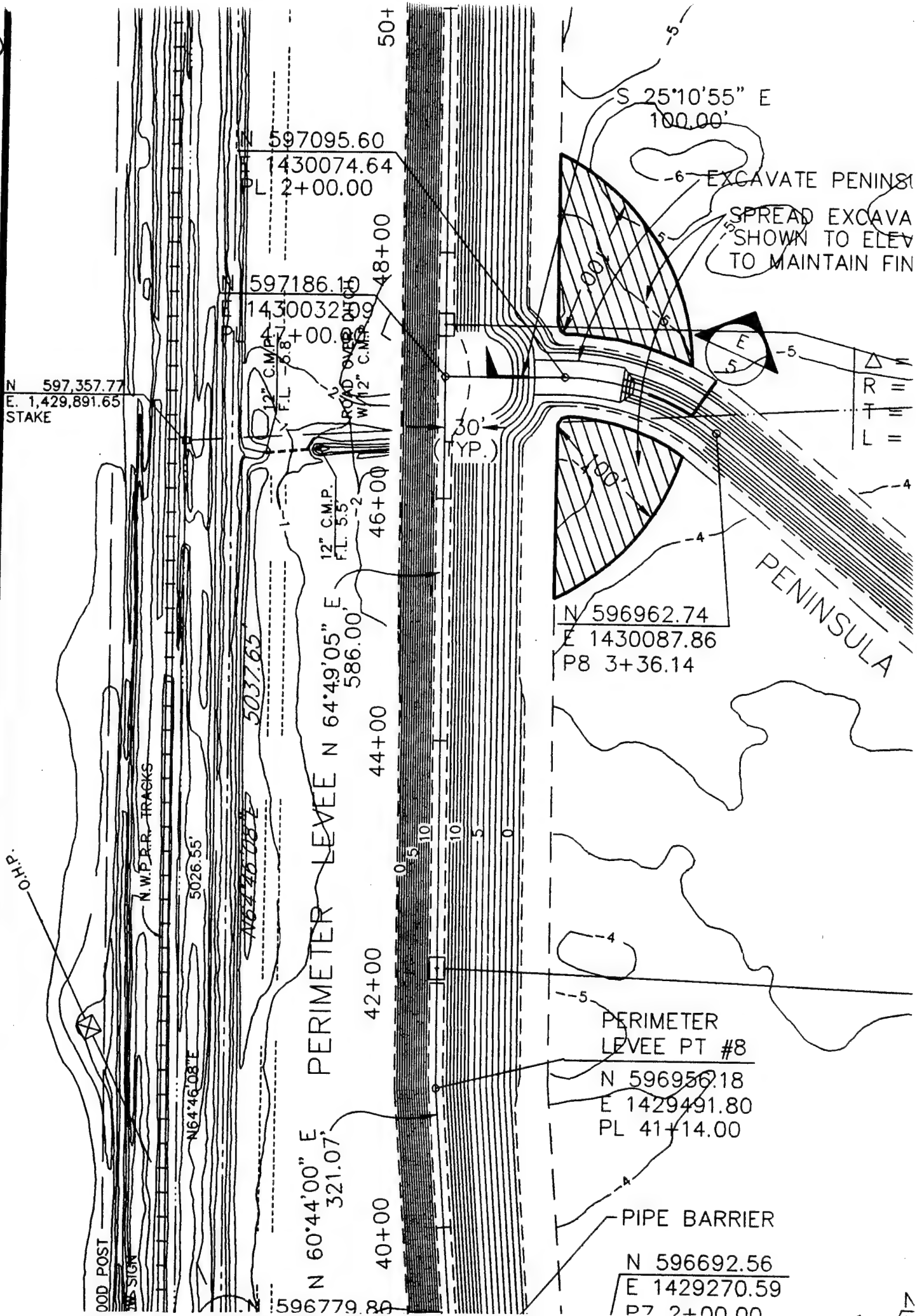
KEY PLAN

N 594,485.00
E 1,431,621.00

N78°52'32"E
787.80'

HIGH WATER MARK

7



8

E 14
P11

TE PENINSULA BREACH (SEE SECTION E ON DWG SHT 5)

EXCAVATED MATERIAL UNCOMPACTED WITHIN AREAS
N TO ELEV +2' NGVD. USE ONLY AREA NECESSARY
MAINTAIN FINISHED ELEV AT +2' NGVD.

CENTRAL NORTH-
SOUTH BASELINE

1459.39'
N28°20'46"W

$\Delta = 39^{\circ}00'00''$
 $R = 200.00'$
 $T = 70.82'$
 $L = 136.14'$

P8 3+36.14

S 13°49'05" W
400.00'

N 596573.12
E 1429997.18
P8 7+36.14

$\Delta = 40^{\circ}55'32''$
 $R = 700.00'$
 $T = 261.20'$
 $L = 500.00'$

N 596088.1
E 1430048.
P8 12+36.1

VINSULA

8

9
5

$\Delta = 44^{\circ}50'$
 $R = 450.00'$
 $T = 185.63'$
 $L = 352.12'$

N 596
E 143
P8 15

N 596504.35

N 596393.91
E 1430689.27
P11 7+16.16

T = 161.68'
L = 302.92'

N 596102.78
E 1430651.68
P11 10+19.08

N 596.073.37
E 1,430,584.57
STAKE

N 595587.92
E 1430936.55
P12 8+08.42

N 595714.15
E 1430556.99
P9 5+85.78

N 596088.16
E 1430048.96
P8 12+36.14

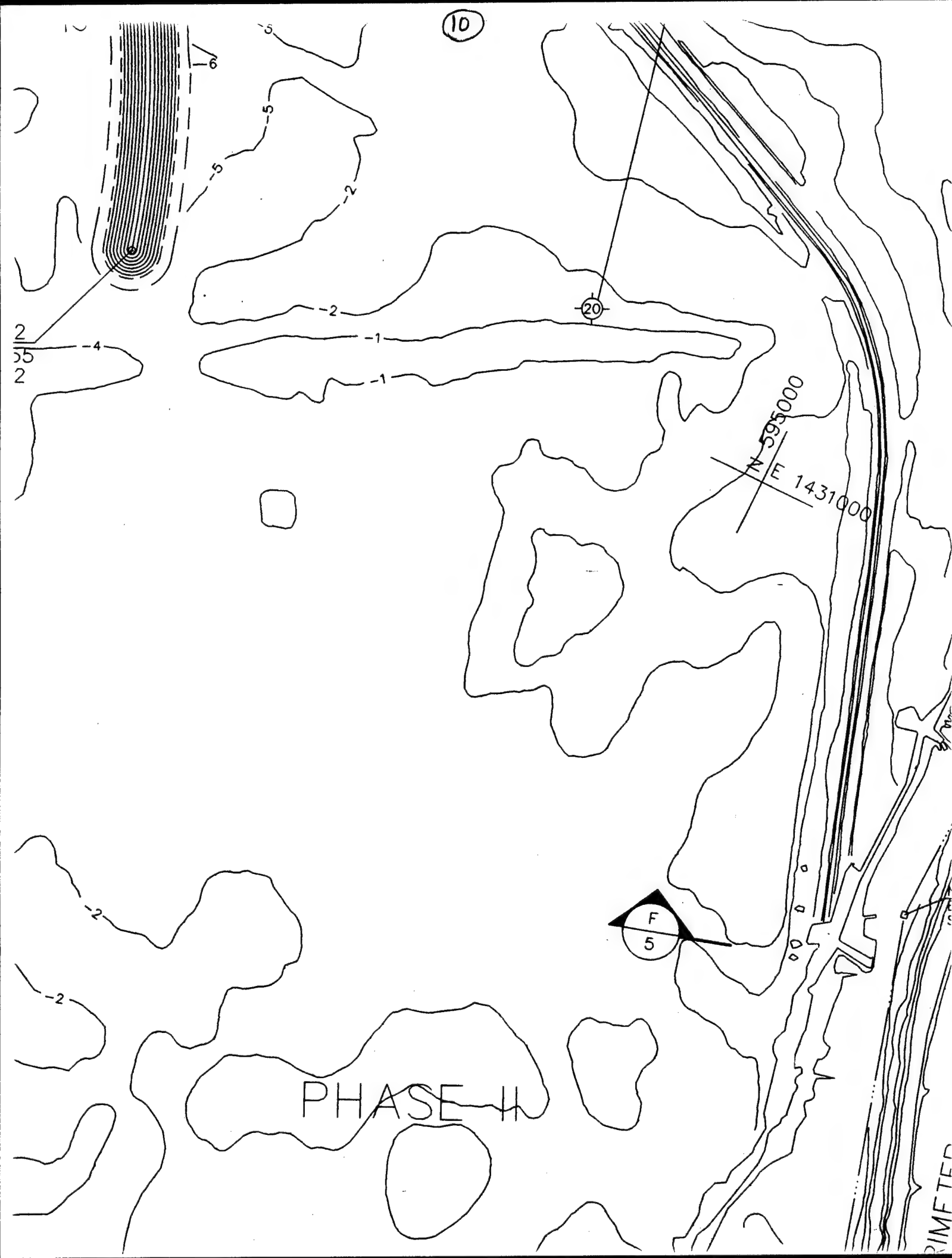
$\Delta = 27^{\circ}50'00''$
R = 1000.00'
T = 247.78'
L = 485.78'

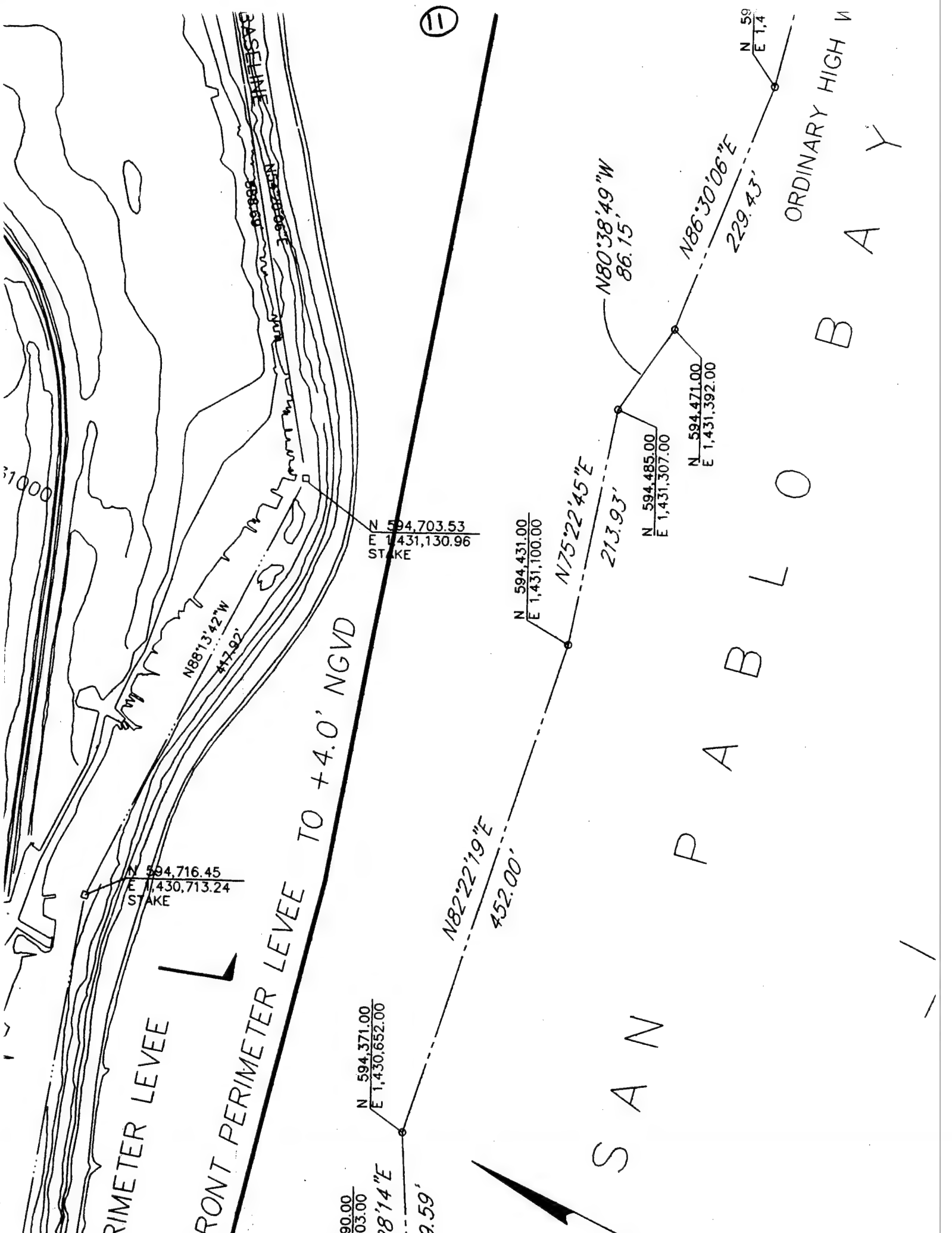
$\Delta = 44^{\circ}50'00''$
R = 450.00'
T = 185.63'
L = 352.12'

N 595746.11
E 1430077.03
P8 15+88.26

$\Delta = 70^{\circ}00'00''$
R = 450.00'
T = 315.09'
L = 549.78'

PENINSULA 9





FRONT PERIMETER LEVEE TO +4.0' NGVD

ORDINARY HIGH W

S A N P A B L O

1

290.00
503.00
28'14"E
9.59'

N 594,371.00
E 1,430,652.00

N 82°22'19"E
452.00'

N 594,431.00
E 1,431,100.00

N 75°22'45"E
213.93'

N 594,485.00
E 1,431,307.00

N 594,471.00
E 1,431,392.00

N 80°38'49"W
86.15'

N 86°30'06"E
229.43'

N 59
E 1.4

31000

N 88°13'42"W
417.92'

N 594,716.45
E 1,430,713.24
STAKE

N 594,703.53
E 1,431,130.96
STAKE

3-90-00-00-00-00

3-90-00-00-00-00



S A N

P

A

B

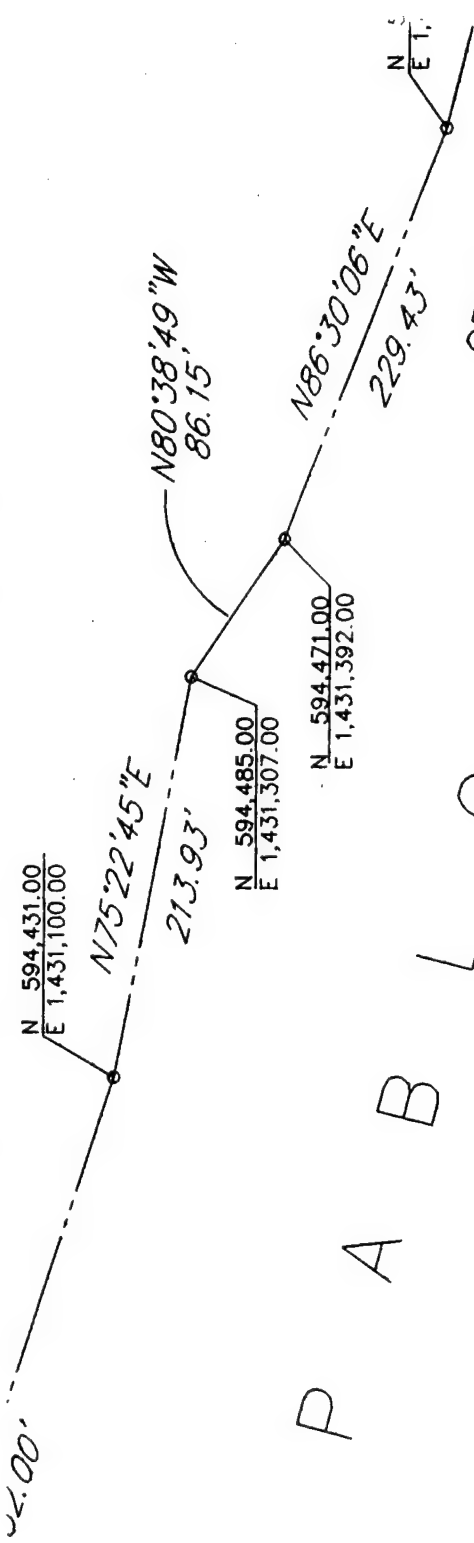
L

O

B

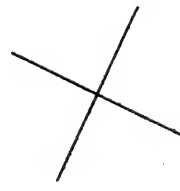
A

Y



ORDINARY HIGH

(12)



N 596956.18
E 1429491.80
PL 41+14.00

N 596692.56
E 1429270.59
P7 2+00.00

5- PENINSULA

S 29°16'00" E - 6
100.00'

~~PENINSULA~~
~~TURN OUT~~

PERIMETER
LEVEE PT #7
N 596730.91
E 1429134.47
PL 36+92.93

CAUTION: MID SPAN
OF HIGH VOLTAGE OVER
CONDUCTORS. $\pm 32'$ A
EXISTING GROUND

PERIMETER
LEVEE PT #6

N 596579.35
E 1428741.62
PL 32+71.86

$\begin{array}{r} N \ 5961 \\ E \ 14290 \\ P6 \ 2+9 \\ N \ 596023 \\ E \ 1428838 \\ P5 \ 5+76. \end{array}$

$\Delta = 44$
 $R = 45$
 $T = 18$
 $L = 35$
 $\frac{N}{E}$
P6

N 596504.35
E 1429424.46
P6 4+44.35

$\Delta = 20^{\circ}00'00''$
 $R = 700.00'$
 $T = 123.43'$
 $L = 244.35'$

N 596221.63
E 1429421.17
P6 7+32.64

$\Delta = 35^{\circ}50'00''$
 $R = 700.00'$
 $T = 226.32'$
 $L = 437.79'$

$\Delta = 38^{\circ}50'$
 $R = 1000.0$
 $T = 352.48$
 $L = 677.77$

$\Delta = 55^{\circ}50'00''$
 $R = 200.00'$
 $T = 105.97'$
 $L = 194.90'$

N 5954
E 1429
P5 12+

N 596104.55
E 1429006.70
P6 2+94.90
N 596023.12
E 1428838.05
P5 5+76.44

IR

66
59

JLA

8

-6

N: MID SPAN LOW POINT SAG
H VOLTAGE OVERHEAD
CTORS. $\pm 32'$ ABOVE
G GROUND

ER

6
5
2
5

PENINSULA 6

PENINSULA 5

(15)

$\Delta = 44^{\circ}50'00''$
 $R = 450.00'$
 $T = 185.63'$
 $L = 352.12'$

N 595746.11
E 1430077.03
P8 15+88.26

$\Delta = 70^{\circ}00'00''$
 $R = 450.00'$
 $T = 315.09'$
 $L = 549.78'$

N 595433.47
E 1429666.25
P8 21+38.04

3498.56'

N64°24'57"E

$\Delta = 38^{\circ}50'00''$
 $R = 1000.00'$
 $T = 352.48'$
 $L = 677.77'$

N 595473.70
E 1429212.48
P5 12+54.21

MATCH LINE SEE SHEET C-1

(16)

PHASE II

-2

-2

E 1430000

N74°05'27"E
575.09

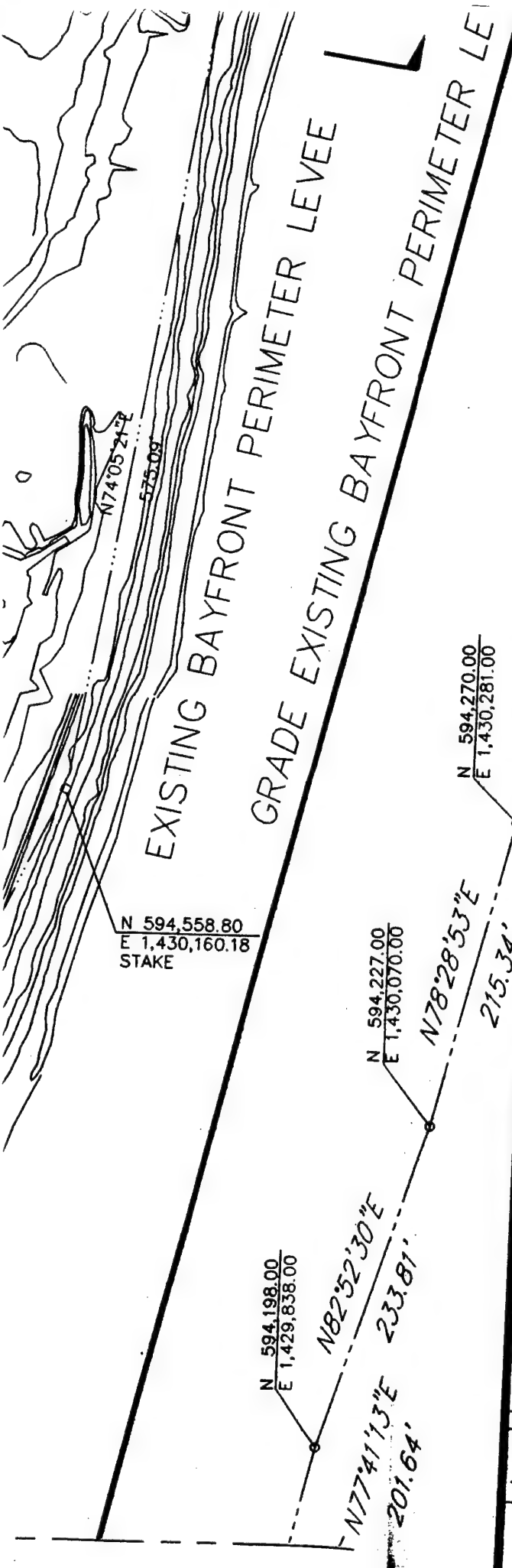
N 594
E 1,430
STAKE

EXISTING

19

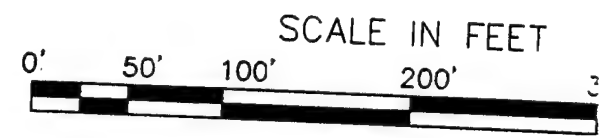
ENDANGERED SPECIES AREA
SEE NOTE 7

N89°42'43"E
106.32
TOP OF LEVEE



(17)

S A N



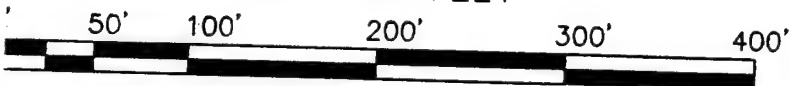
SYMBOL		DESCRIPTION	
REVISIONS		U.S. ARMY	
DRAWN BY:		SONOMA COUNTY	
BYL		<p>SONOMA LEVEE BREACH PL SHEET</p>	
CHECKED BY:			
SC			
DESIGNED BY:			
SC			
PROJECT COORDINATOR			
SUBMITTED:			
CHIEF, GEOTECHNICAL SECTION			
APPROVAL RECOMMENDED:		APPROVED:	
CHIEF, ENGINEERING BRANCH		CHIEF, PLANNING/ENGINEERING	
<p>PREPARED UNDER THE DIRECTION OF RICHARD G. THOMPSON</p>			
SCALE:			

18

SAN



SCALE IN FEET



DESCRIPTION	DATE	APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

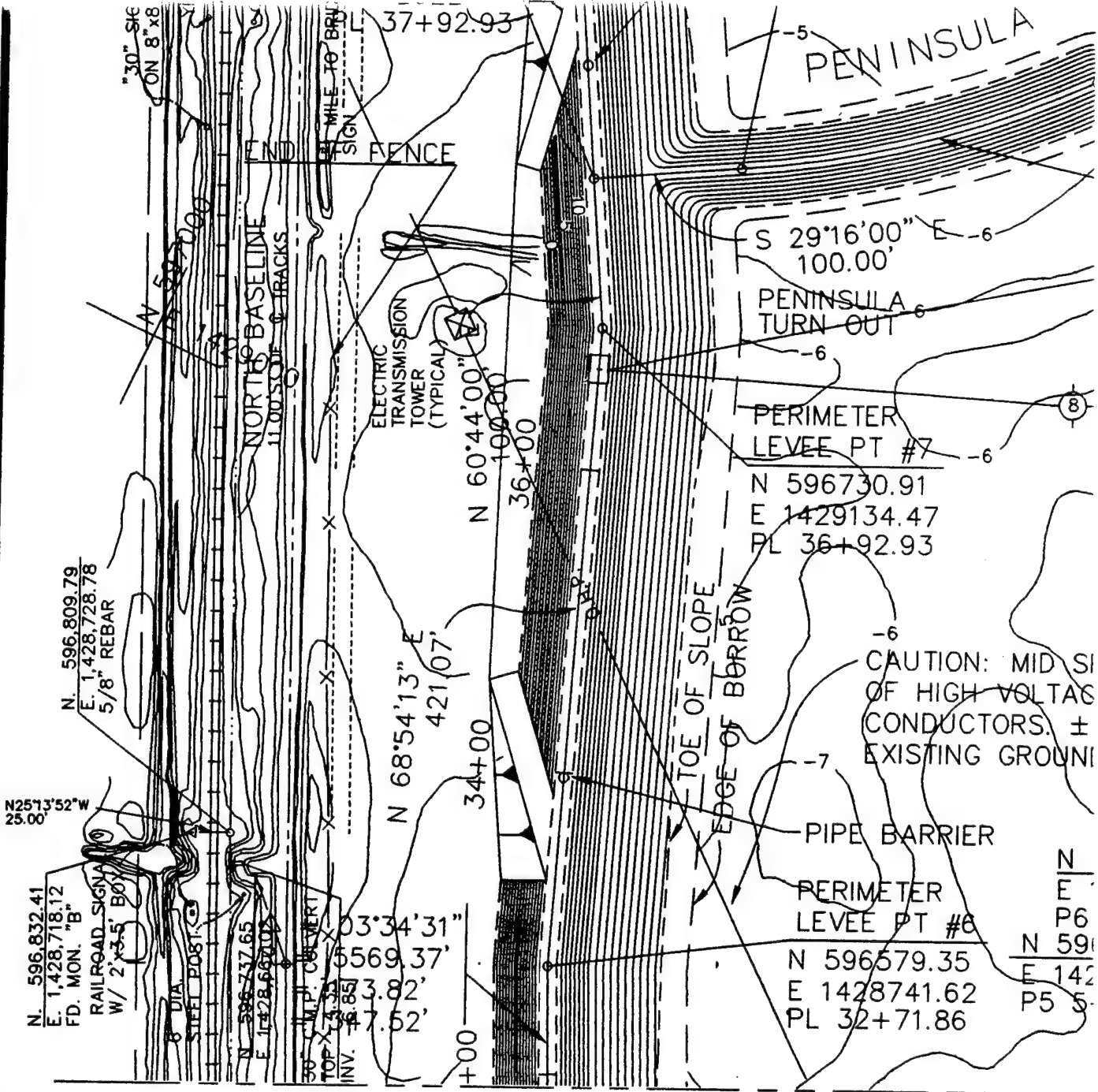
SONOMA COUNTY

CALIFORNIA

SONOMA BAYLANDS LEVEE BREACH PROJECT

PLAN SHEET 2 OF 3

D:	APPROVED:	DATE:
G BRANCH	CHIEF, PLANNING/ENGINEERING DIVISION	
ER THE DIRECTION OF	SCALE: 1"=100'	JOB NO.:
G. THOMPSON	DRAWING NUMBER	
DISTRICT ENGINEER		



INSULA

PY 4+44.35

(20)

$\Delta = 20^{\circ}00'00''$
 $R = 700.00'$
 $T = 123.43'$
 $L = 244.35'-6$

N 596221.63
E 1429421.17
P6 7+32.64

0" E -6

A 6

#7 -6

91
.47
93

UTION: MID SPAN LOW POINT SAG
HIGH VOLTAGE OVERHEAD
INDUCTORS. $\pm 32'$ ABOVE
STING GROUND

BARRIER

TER
T #8

79.35
41.62
1.86

N 596104.55
E 1429006.70
P6 2+94.90
N 596023.12
E 1428838.05
P5 5+76.44

$\Delta = 35^{\circ}50'00''$
 $R = 700.00'$
 $T = 226.32'$
 $L = 437.79'$

$\Delta = 55^{\circ}50'00''$
 $R = 200.00'$
 $T = 105.97'$
 $L = 194.90'$

$\Delta = 38^{\circ}$
 $R = 10$
 $T = 35$
 $L = 67$

N
E
P5

PENINSULA 6

PENINSULA 5

(21)

N 595433.47
E 1429666.25
P8 21+38.04

3498.56'

N64°24'57"E

$\Delta = 38^{\circ}50'00''$
R = 1000.00'
T = 352.48'
L = 677.77'

N 595473.70
E 1429212.48
P5 12+54.21

MATCH LINE SEE SHEET C-1

2a

E 1430000

N 74° 05' 24"
E 575.09'

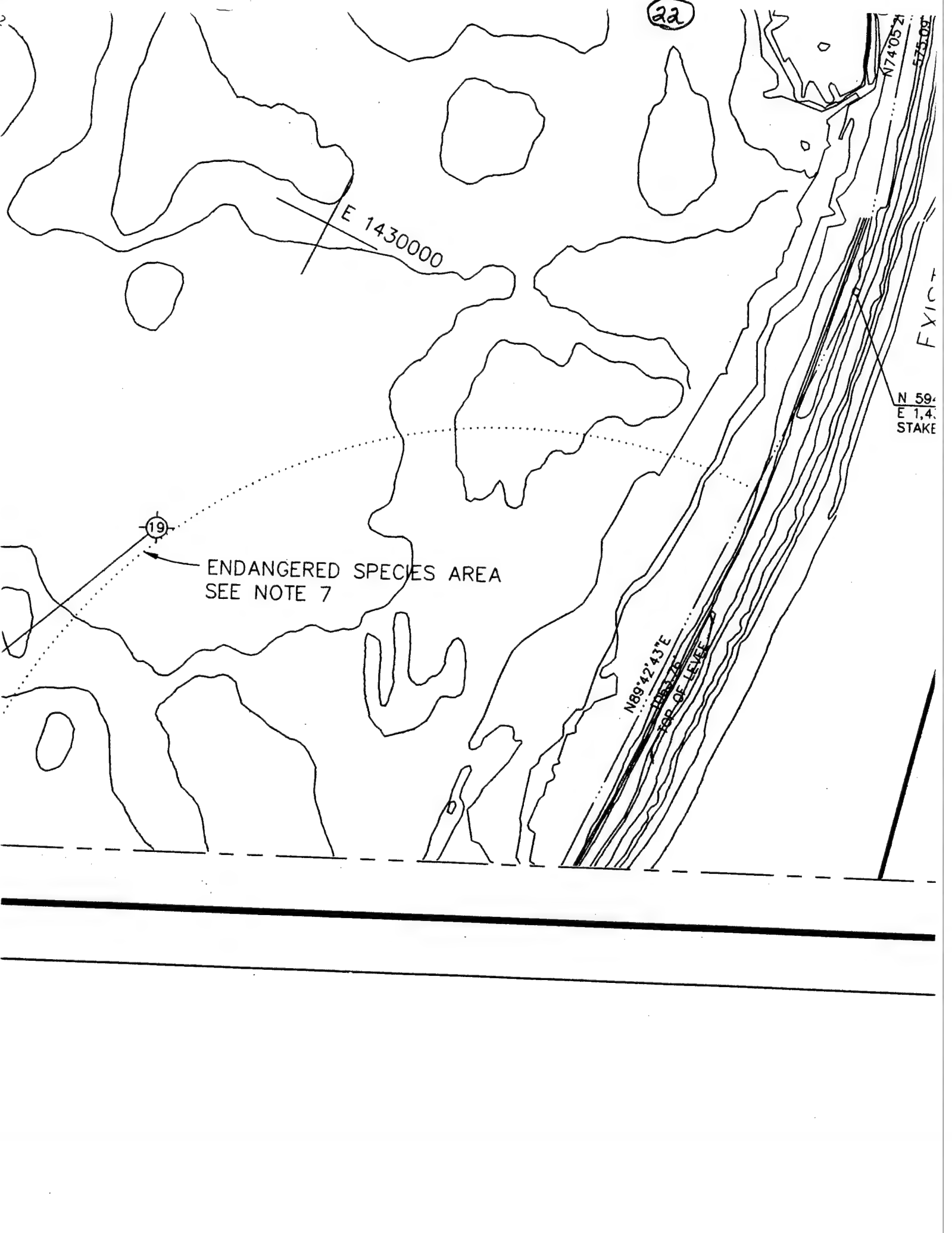
N 59°
E 1.4'
STAKE

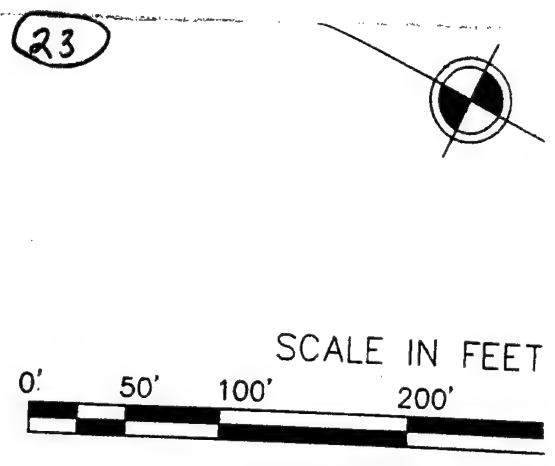
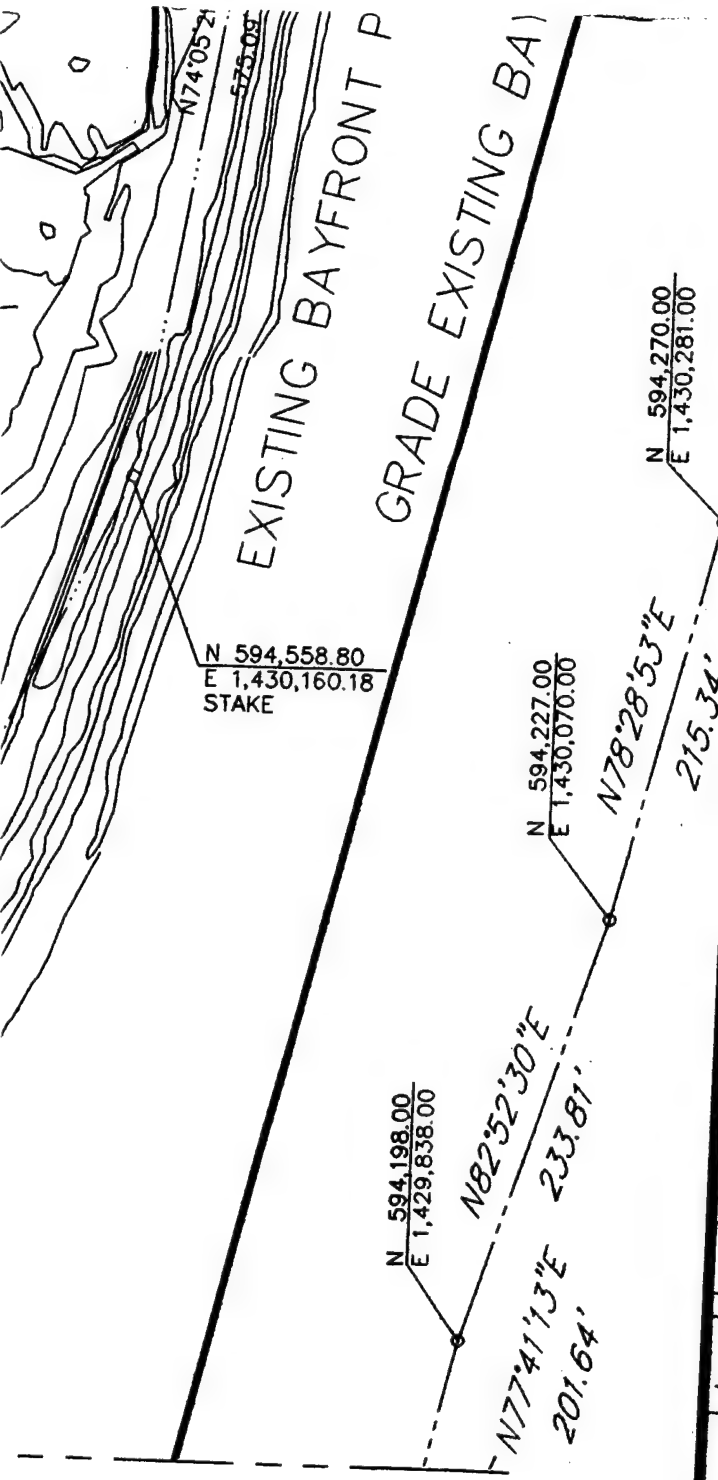
FYIC

19

ENDANGERED SPECIES AREA
SEE NOTE 7

N 89° 42' 43" E
100.00'
TOP OF LEVEE





23

SYMBOL	DESCRIPTION
REVISIONS	
U.S.	

DRAWN BY: <div style="text-align: center;">BYL</div>	SONOMA COUNTY SONOM. LEVEE BR SHEE
CHECKED BY: <div style="text-align: center;">SC</div>	
DESIGNED BY: <div style="text-align: center;">SC</div>	
PROJECT COORDINATOR	
SUBMITTED:	

CHIEF, GEOTECHNICAL SECTION APPROVAL RECOMMENDED:	APPROVED:
CHIEF, ENGINEERING BRANCH	CHIEF, PLANNING/EN

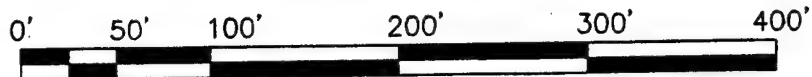
PREPARED UNDER THE DIRECTION OF
 RICHARD G. THOMPSON
 LT. COLONEL, C.E., DISTRICT ENGINEER

SCAL
 SHEE

24



SCALE IN FEET



DESCRIPTION	DATE	APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

SONOMA COUNTY

CALIFORNIA

SONOMA BAYLANDS
LEVEE BREACH PROJECT

PLAN
SHEET 2 OF 3

INATOR

AL SECTION

COMMENDED:

APPROVED:

DATE:

ENGINEERING BRANCH

CHIEF, PLANNING/ENGINEERING DIVISION

SCALE: 1"=100'

JOB NO.:

RED UNDER THE DIRECTION OF
RICHARD G. THOMPSON
LONEL, C.E., DISTRICT ENGINEER

DRAWING NUMBER

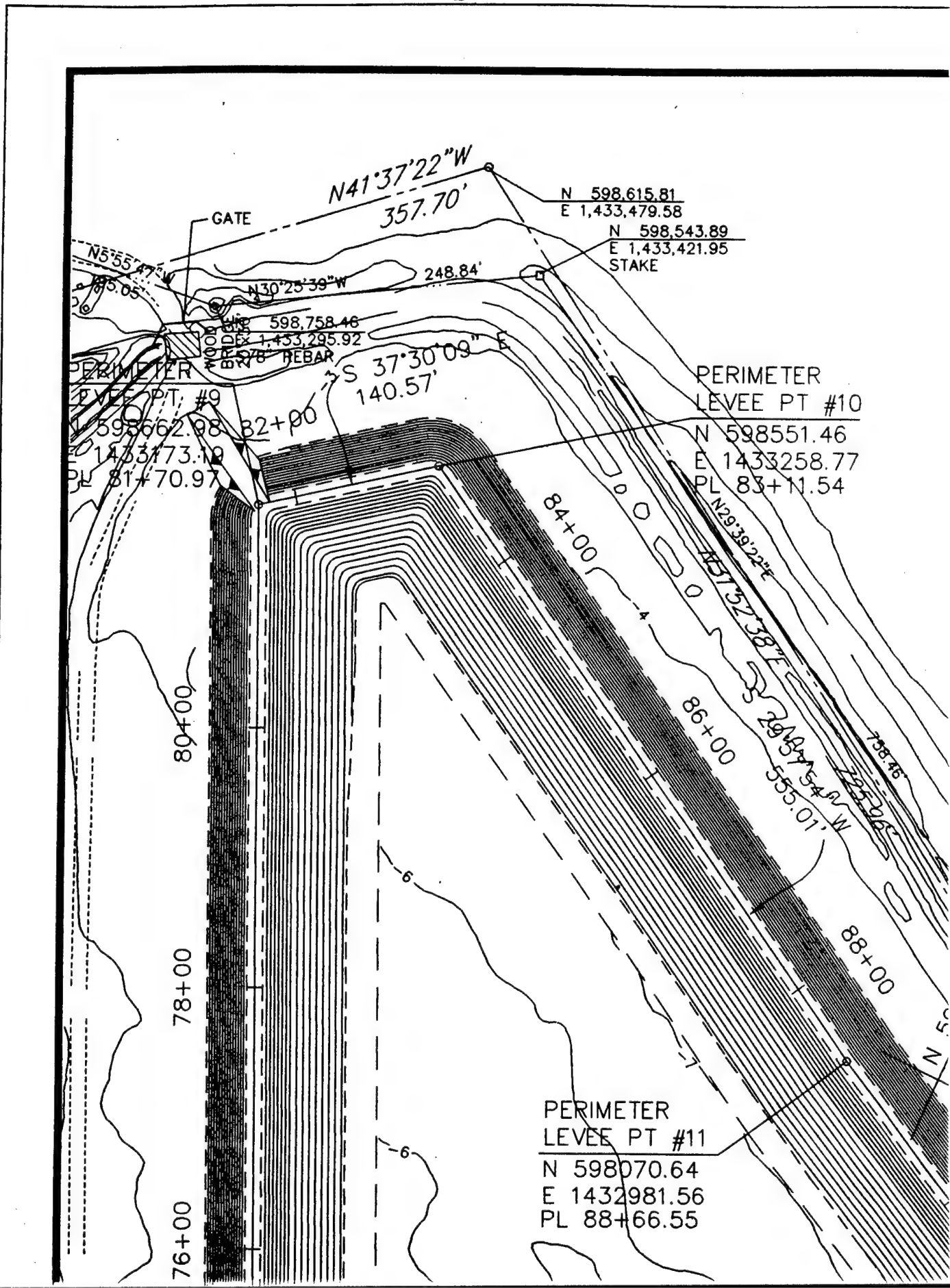
SHEET: 3

155

57

2

①



758.46'

4206'

0+00

N 598.000

N 597.899.34

E 1033.096.20

0+00

S 26°54'45" W

341.75

N 597.884.78

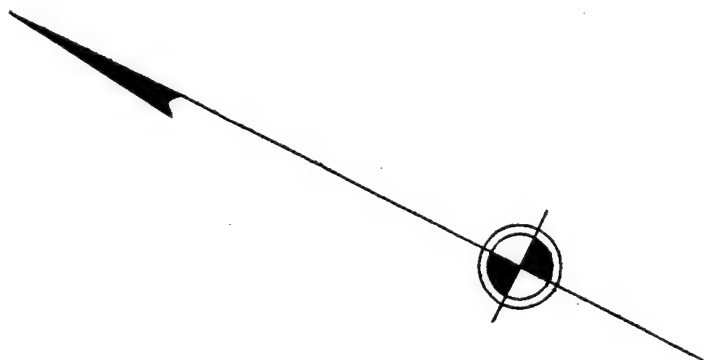
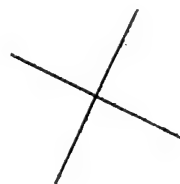
E 1,433,046.67

STAKE

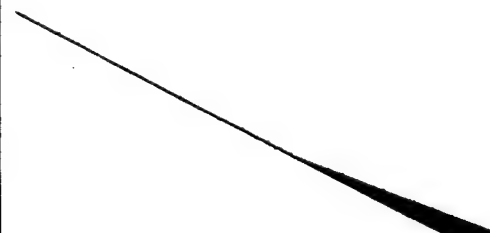
N 26°52'38" E

329.98'

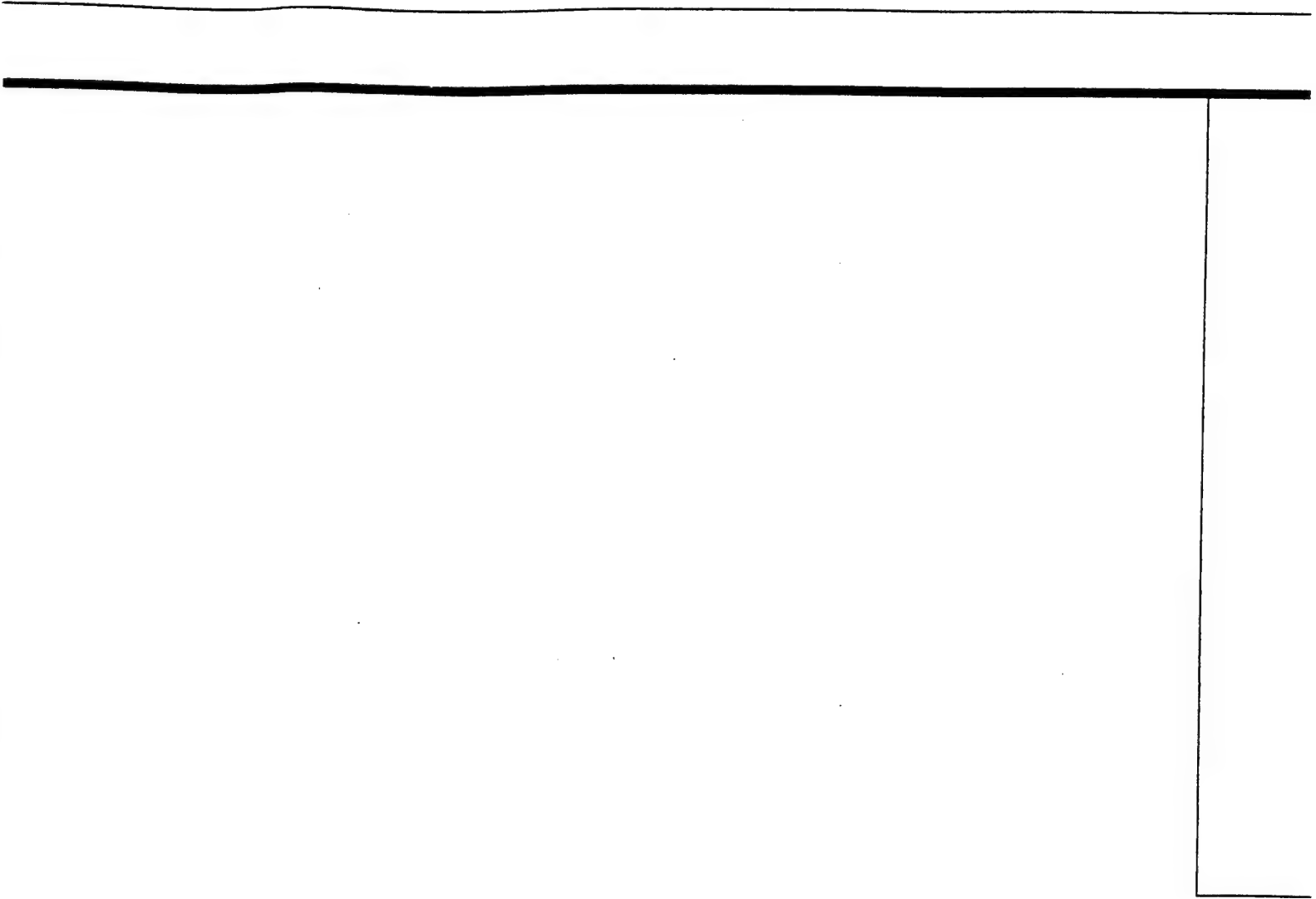
③



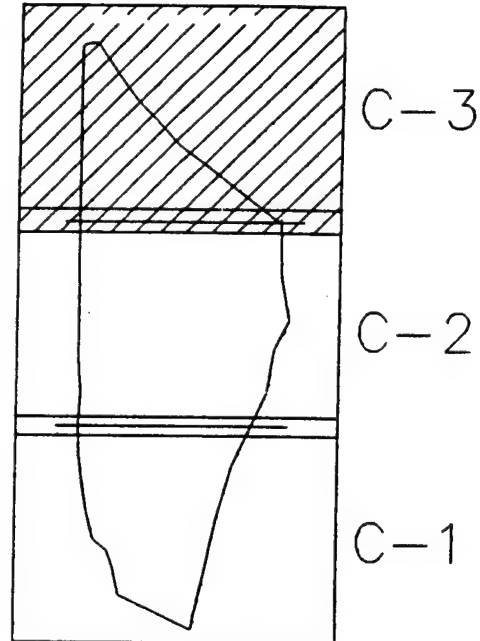
④



⑤



6



KEY PLAN

N 598070.64
E 1432981.56
PL 88+66.55

PERIMETER
LEVEE PT #12

N 597766.04
E 1432826.61
PL 92+08.30

$\Delta = 4$
R = 50
T = 20
L = 39

N 598058.36
E 1431887.26
PL 67+50.00

N 597967.87
E 1431929.81
P13 2+00.00

N 597922.09
E 1431949.96
P13 2+50.00

$\Delta = 39^{\circ}00'00''$
R = 1000.00'
T = 354.12'
L = 680.68'

N 5
E 1
P14

S $25^{\circ}10'55''$ E
100.00'

PENINSULA

LEVEE

+00

68+00

70+00

72+00

74+00

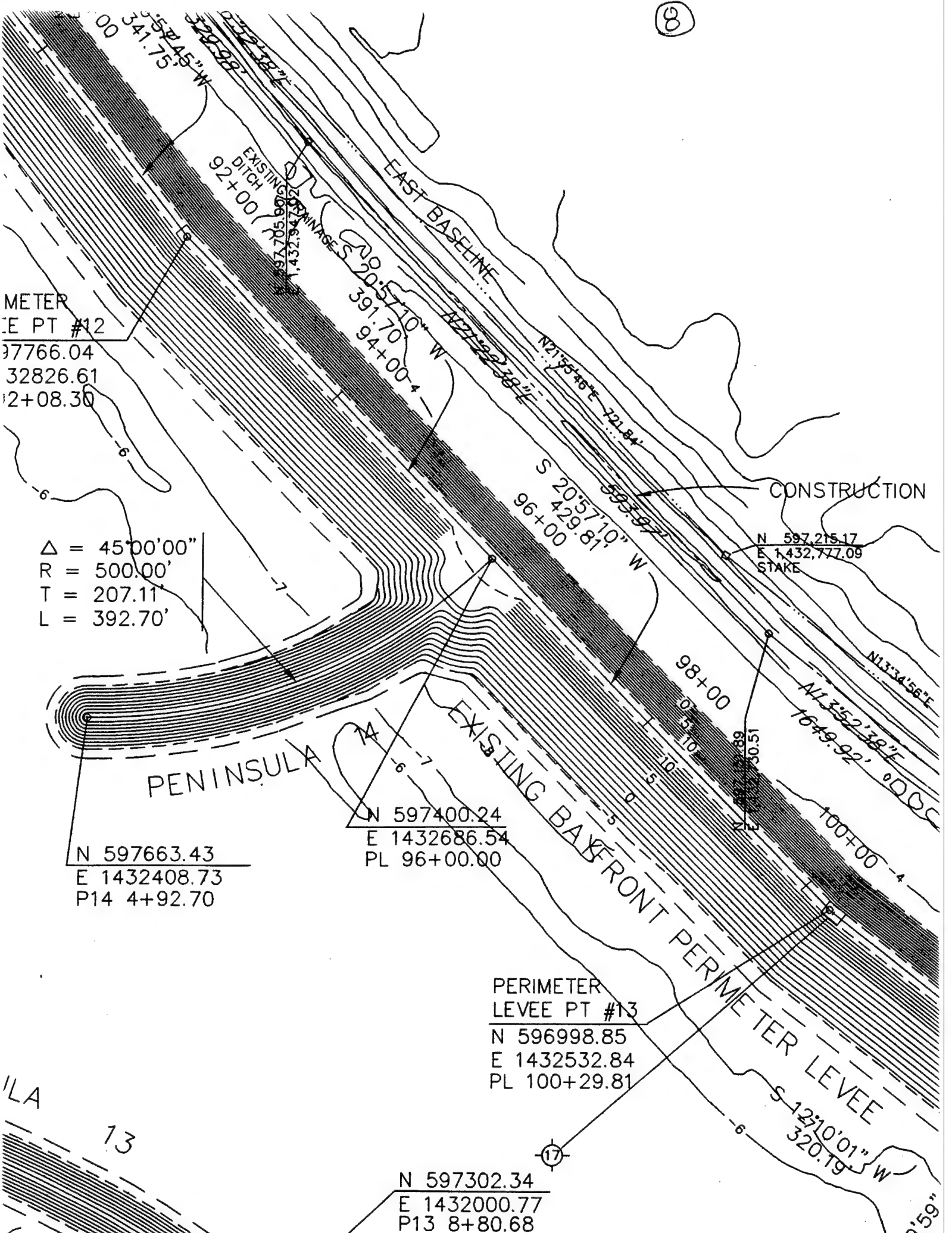
76+00

S $64^{\circ}49'05''$ W
1420.97'

7

12

8



METER
E PT #12
37766.04
32826.61
12+08.30

$\Delta = 45^{\circ}00'00''$
 $R = 500.00'$
 $T = 207.11'$
 $L = 392.70'$

N 597663.43
E 1432408.73
P14 4+92.70

N 597400.24
E 1432686.54
PL 96+00.00

PERIMETER
LEVEE PT #13
N 596998.85
E 1432532.84
PL 100+29.81

N 597302.34
E 1432000.77
P13 8+80.68

N 597215.17
E 1432777.09
STAKE

LA
13

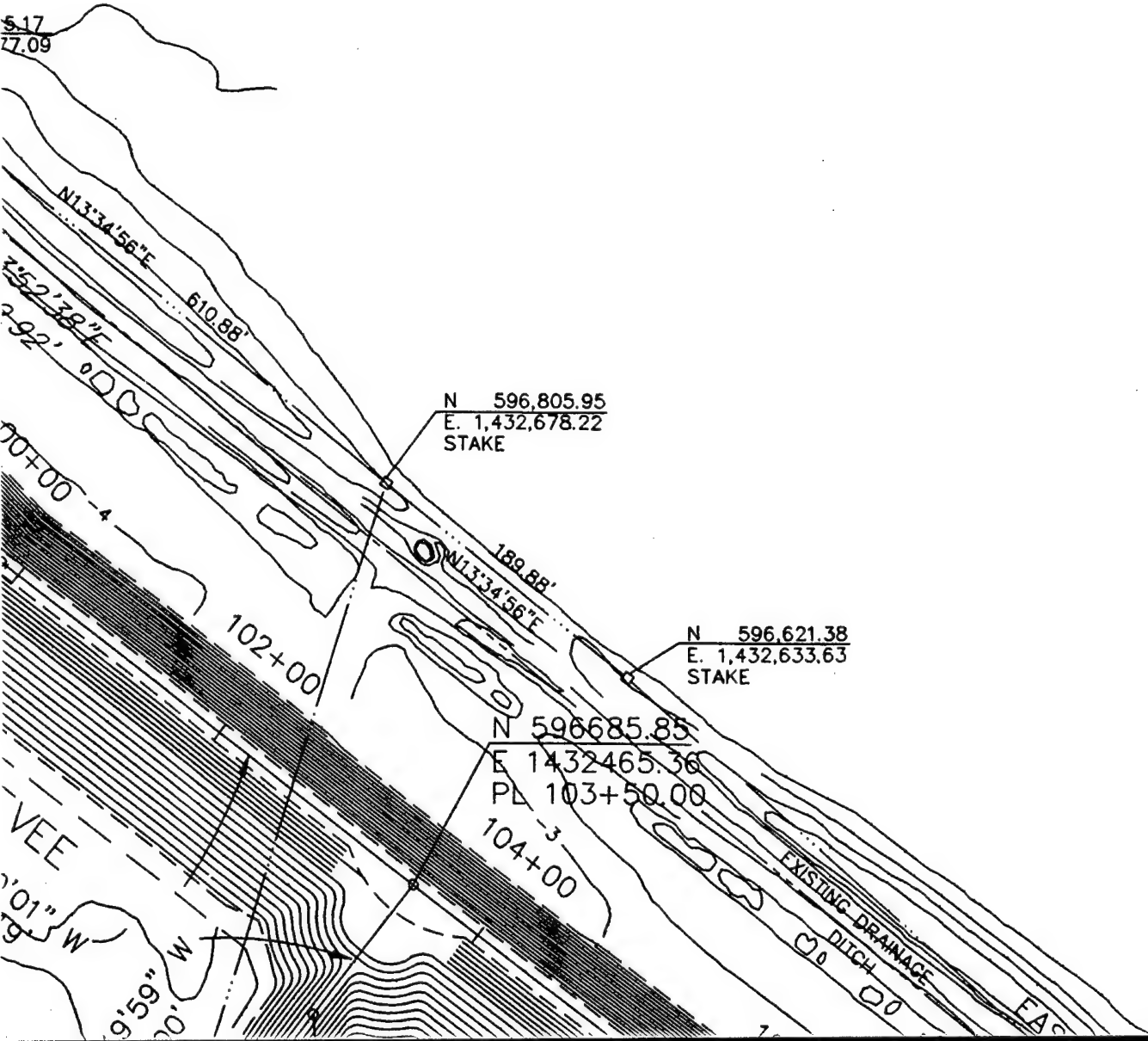
17

9'59"

N 597000

TRUCTION RIGHT OF WAY

5.17
77.09

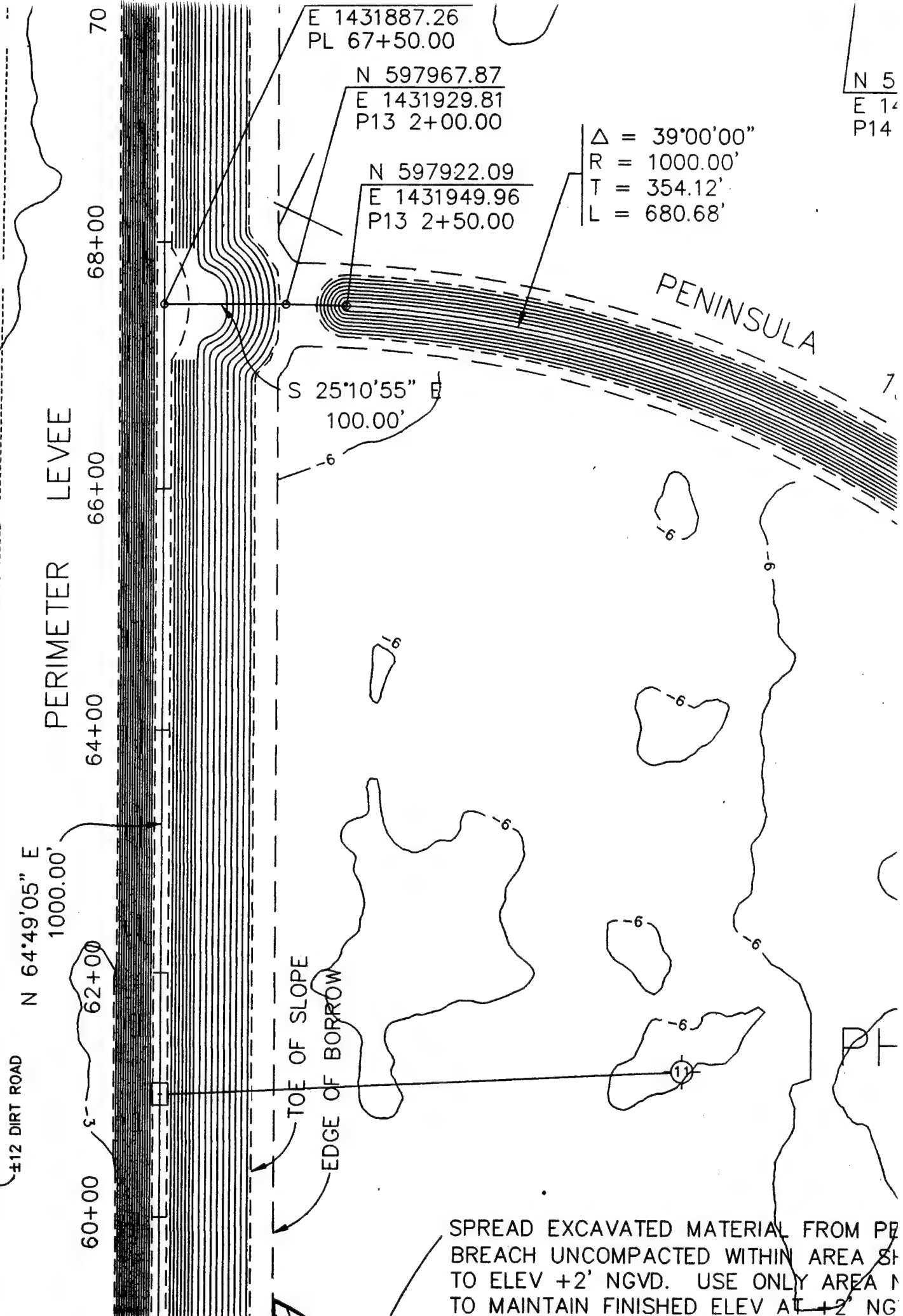


10

~~N 596000~~

⑫

13



(14)

PENINSULA

N 597663.43
E 1432408.73
P14 4+92.70

N 597400.24
E 1432686.54
PL 96+00.00

PERIMETER
LEVEE PT #13
N 596998.85
E 1432532.84
PL 100+29.81

N 597302.34
E 1432000.77
P13 8+80.68

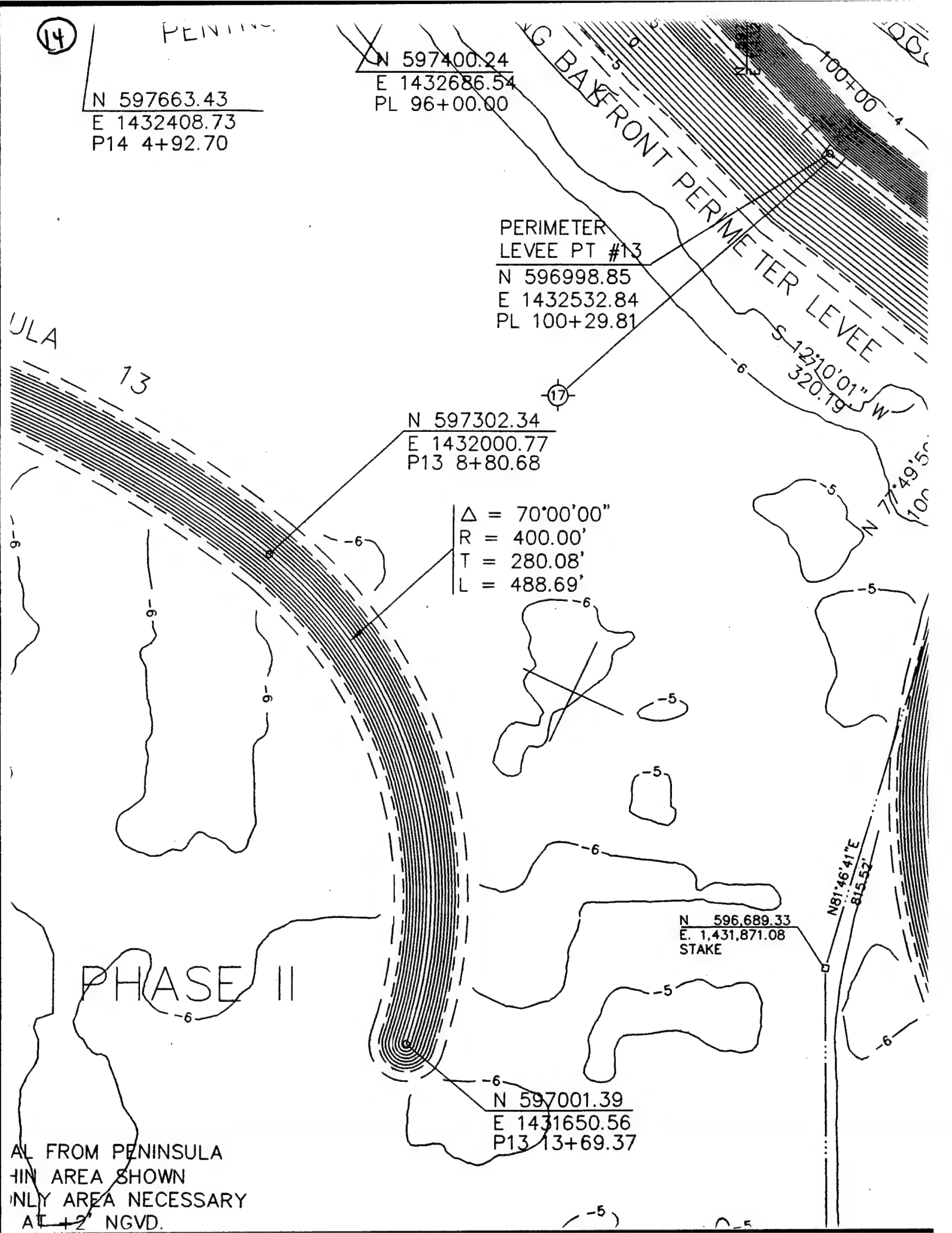
$\Delta = 70^{\circ}00'00''$
 $R = 400.00'$
 $T = 280.08'$
 $L = 488.69'$

N 596,689.33
E 1,431,871.08
STAKE

N 597001.39
E 1431650.56
P13 13+69.37

PHASE II

ALL FROM PENINSULA
AREA SHOWN
ONLY AREA NECESSARY
AT +2' NGVD.



N 596,805.95
E. 1,432,678.22
STAKE

N 596,621.38
E. 1,432,633.63
STAKE

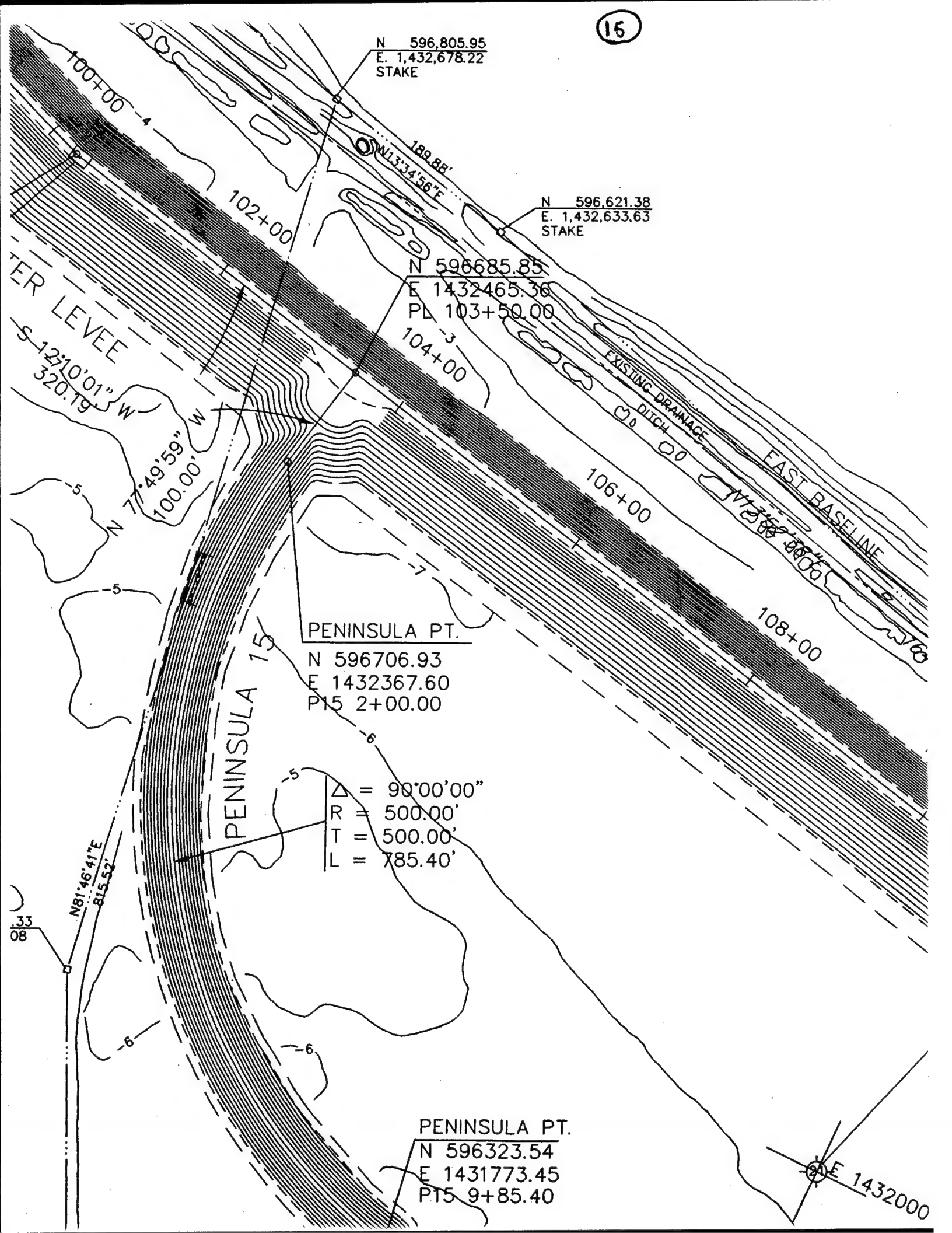
N 596685.85
E 1432465.36
PL 103+50.00

PENINSULA PT.
N 596706.93
E 1432367.60
P15 2+00.00

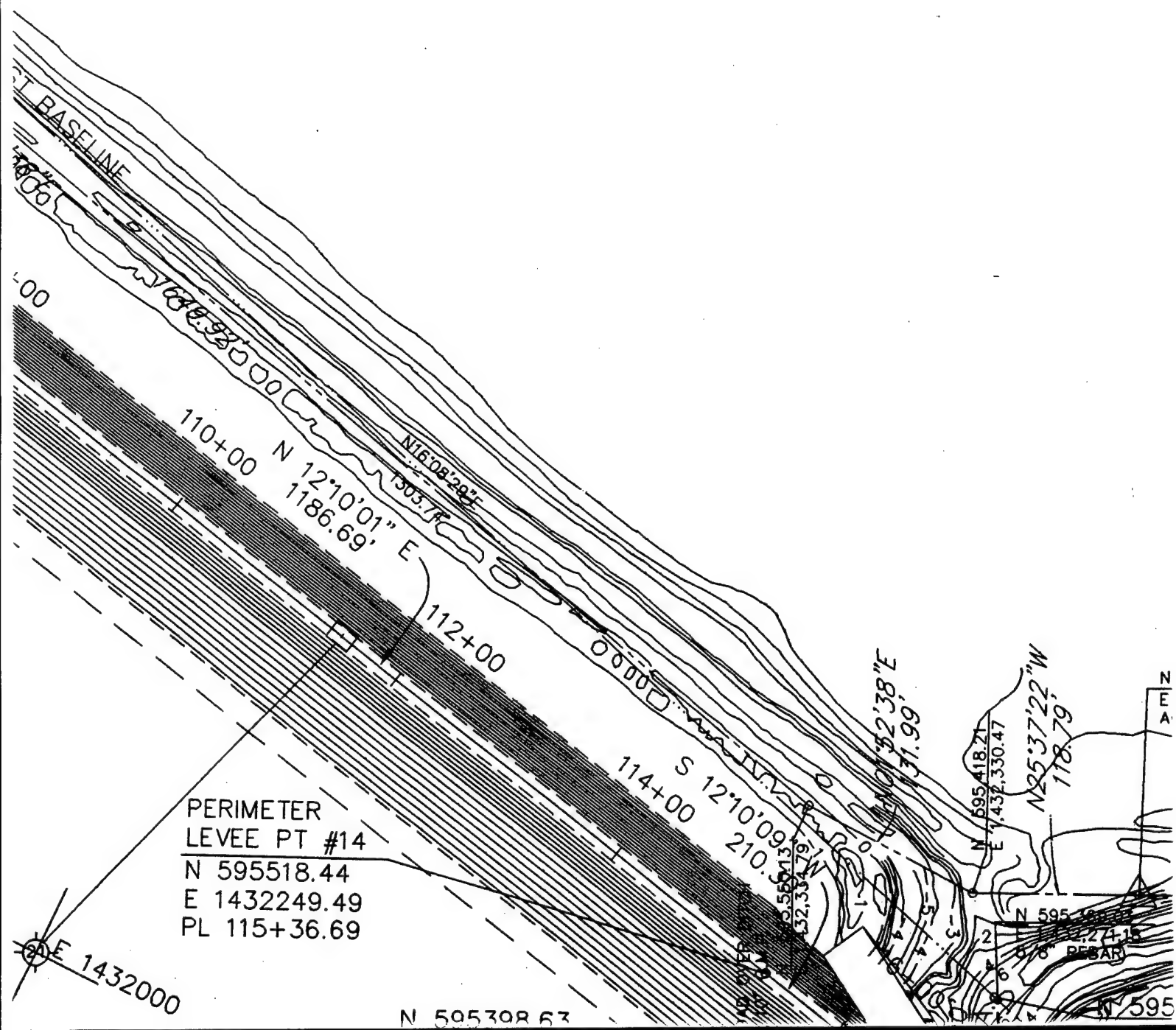
$\Delta = 90^{\circ}00'00''$
R = 500.00'
T = 500.00'
L = 785.40'

PENINSULA PT.
N 596323.54
E 1431773.45
PT5 9+85.40

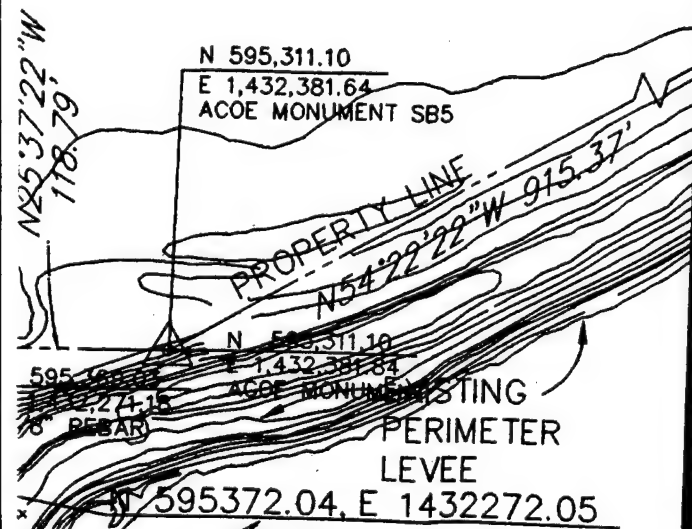
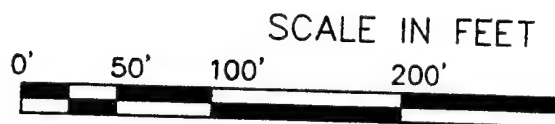
E 1432000



~~N 596000~~



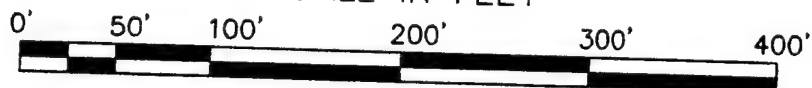
17



SYMBOL	DESCRIPTION
REVISIONS	
U.S. AR	
DRAWN BY: BYL	SONOMA COUNTY SONOMA LEVEE BREAK PL
CHECKED BY: SC	
DESIGNED BY: SC	
PROJECT COORDINATOR	
SUBMITTED:	

18

SCALE IN FEET



DESCRIPTION

DATE

APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

SONOMA COUNTY

CALIFORNIA

**SONOMA BAYLANDS
LEVEE BREACH PROJECT**

PLAN

SHEET 3 OF 3

TOR

SECTION

19

±12 DIRT ROAD

N 64°49'05" E
1000.00'

PERIM

64+00

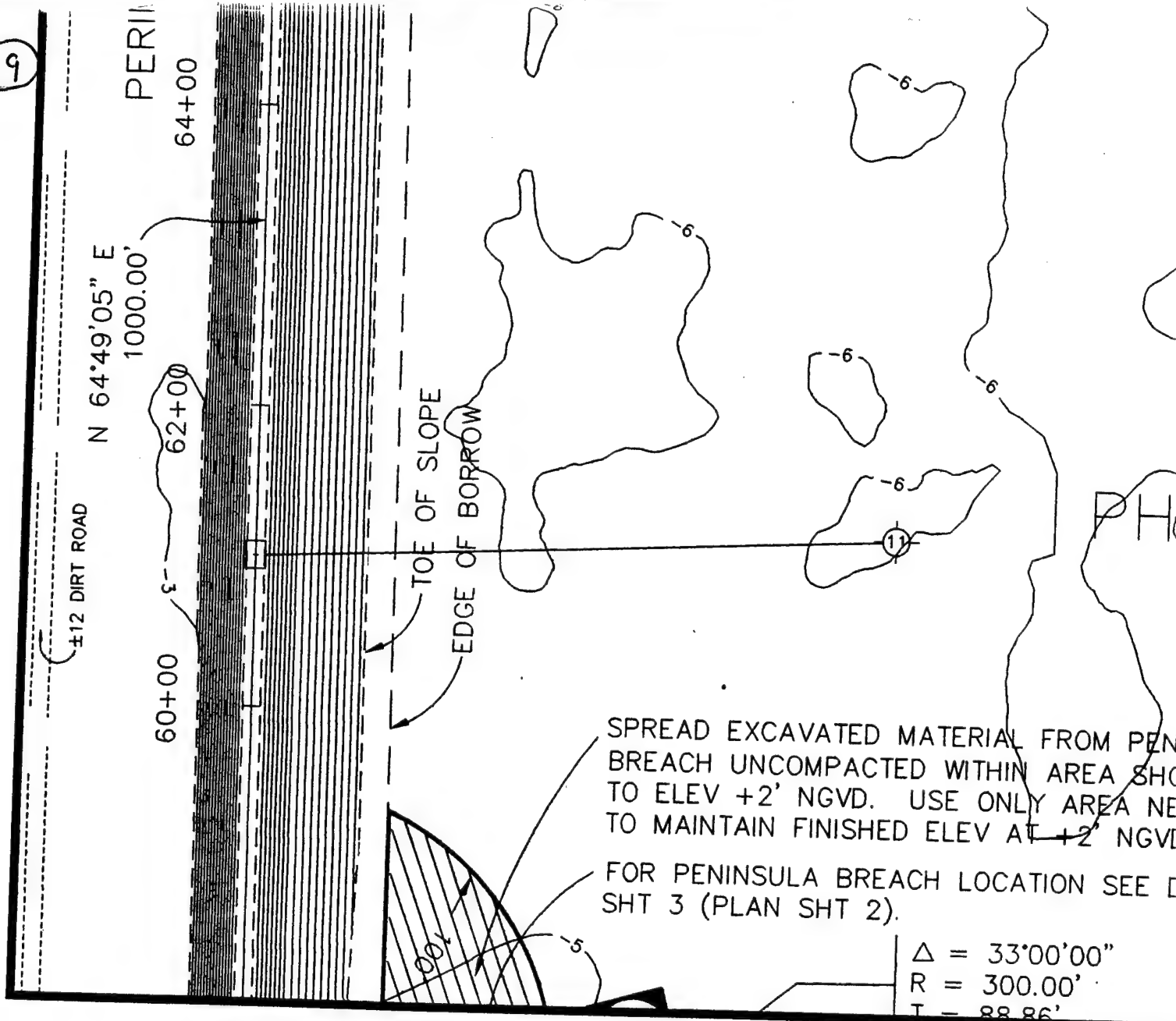
62+00

60+00

TOE OF SLOPE
EDGE OF BORROW

SPREAD EXCAVATED MATERIAL FROM PEN
BREACH UNCOMPACTED WITHIN AREA SHO
TO ELEV +2' NGVD. USE ONLY AREA NE
TO MAINTAIN FINISHED ELEV AT +2' NGVD
FOR PENINSULA BREACH LOCATION SEE L
SHT 3 (PLAN SHT 2).

$\Delta = 33^{\circ}00'00''$
 $R = 300.00'$
 $T = 88.86'$



20

PHASE II

N 596,689.33
E. 1,431,871.08
STAKE

N 597001.39
E 1431650.56
P13 13+69.37

N81°46'41"E
815.52'

FROM PENINSULA
N AREA SHOWN
LY AREA NECESSARY
AT +2' NGVD.

ATION SEE DWG

3'00'00"
00.00'
86'

(21)

PENINSULA PT.

N 596706.93
E 1432367.60
P15 2+00.00

PENINSULA 15

$\Delta = 90^{\circ}00'00''$
R = 500.00'
T = 500.00'
L = 785.40'

01'46'41"E
815.52'

108+00

110+00

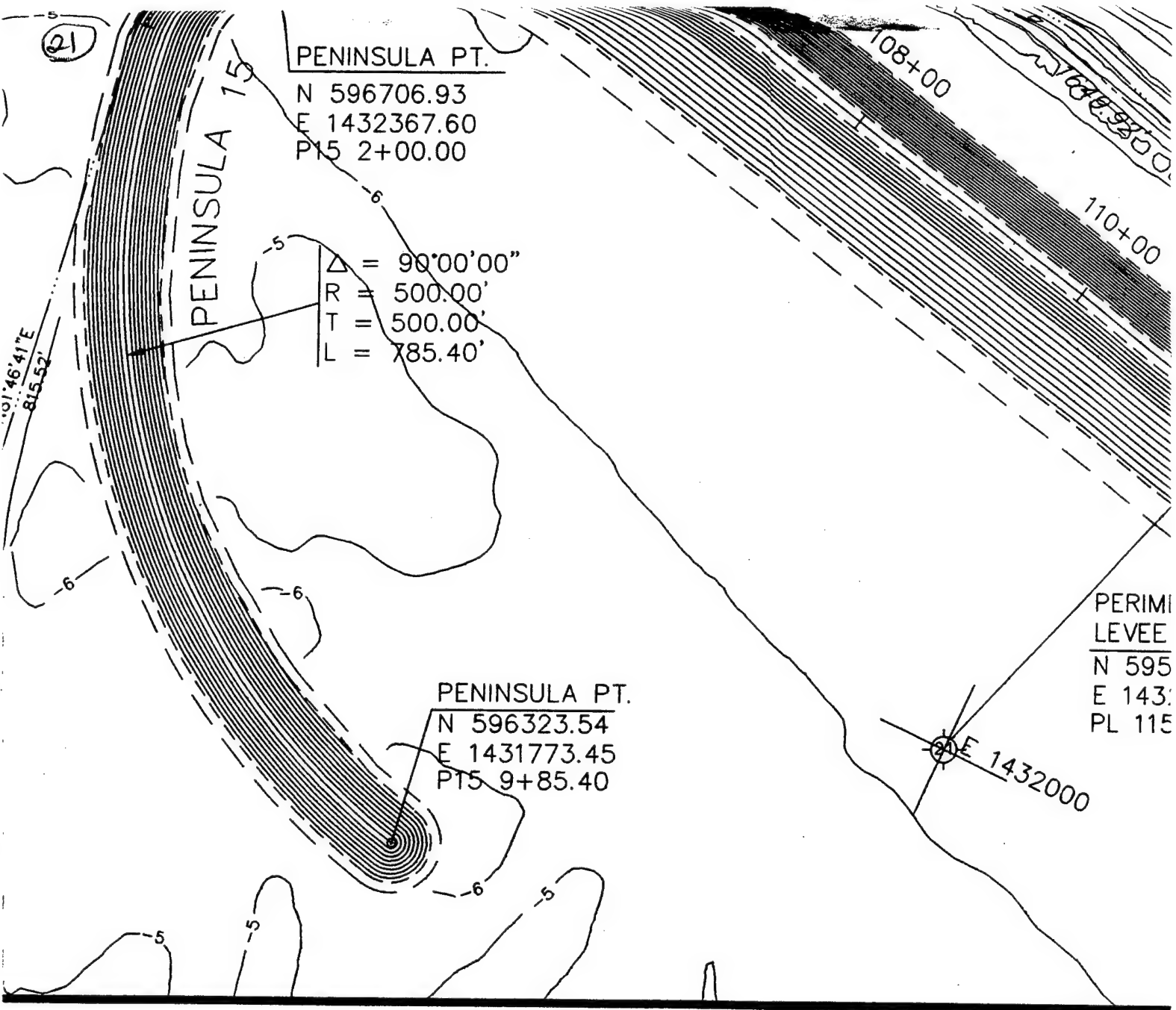
PENINSULA PT.

N 596323.54
E 1431773.45
P15 9+85.40

PERIMI
LEVEE

N 595
E 143
PL 115

E 1432000



(22)

110+00 N 12°10'01" E
1186.69'

N 16°08'29" E
1303.7'

112+00

114+00 S 12°10'09" E
210.58'

N 12°32'38" E
131.99'

N 25°37'22" W
118.79'

N 595,3
E 1,432,
ACOE MK

PERIMETER
LEVEE PT #14
N 595518.44
E 1432249.49
PL 115+36.69

1432000

N 595398.63
E 1432187.82
N 595369.13
E 1432181.46
N 595406
E 1432094
S 62°14'47" W, 47'

N 595372.
S 16°08'
N 595
PERIMET
N 59532
PL 117+
S 64'

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

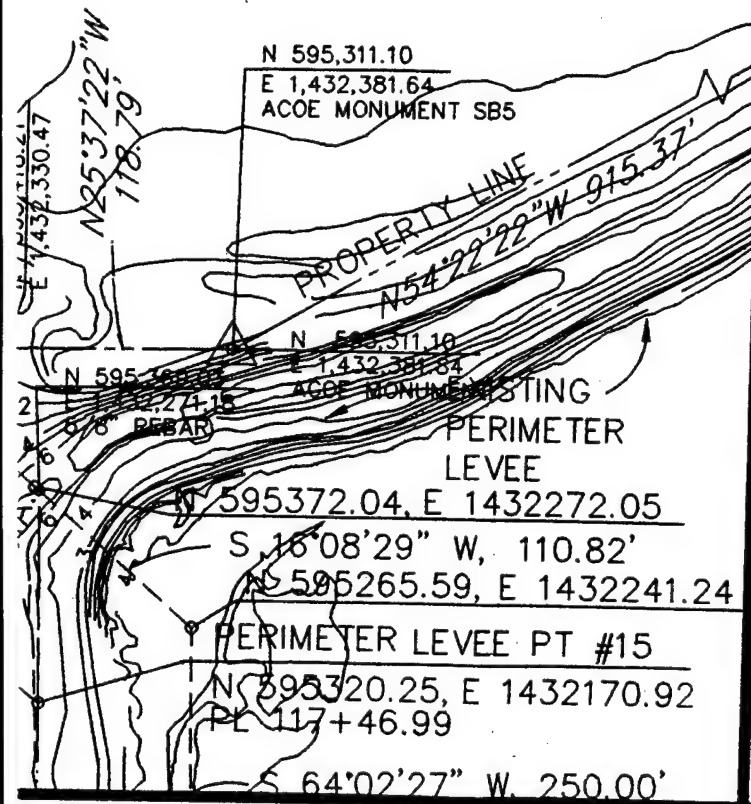
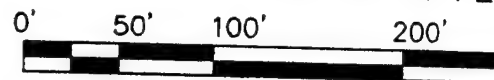
18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

18" C.M.P.
18" C.M.P.
18" C.M.P.

23

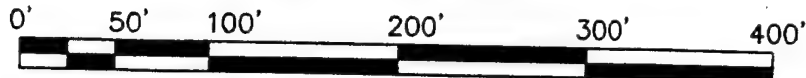
SCALE IN FEET



SYMBOL	DESCRIPTION
REVISIONS	
U.S.	
DRAWN BY: BYL	SONOMA COUNTY SONOMA LEVEE BOARD SHE
CHECKED BY: SC	
DESIGNED BY: SC	
PROJECT COORDINATOR	
SUBMITTED:	
CHIEF, GEOTECHNICAL SECTION	
APPROVAL RECOMMENDED:	APPROVED:
CHIEF, ENGINEERING BRANCH	CHIEF, PLANNING/
PREPARED UNDER THE DIRECTION OF RICHARD G. THOMPSON LT. COLONEL, C.E., DISTRICT ENGINEER	
SC	
SHE	

(24)

SCALE IN FEET



DESCRIPTION

DATE

APPROVAL

REVISIONS

U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

BYL

SONOMA COUNTY

CALIFORNIA

**SONOMA BAYLANDS
LEVEE BREACH PROJECT**

**PLAN
SHEET 3 OF 3**

COORDINATOR

INITIAL SECTION

RECOMMENDED:

APPROVED:

DATE:

CHIEF, ENGINEERING BRANCH

CHIEF, PLANNING/ENGINEERING DIVISION

PREPARED UNDER THE DIRECTION OF
RICHARD G. THOMPSON
COLONEL, C.E., DISTRICT ENGINEER

SCALE: 1"=100'

JOB NO.:

DRAWING NUMBER

SHEET: 4

155

57

2

①

CREST ()
LEVEE A
WEIR No

EXCAVATE AND PLACE EXCAVATED
MATERIAL BEHIND EXIST LEVEES
UNCOMPACTED.
(SEE TYP CROSS SECTION F)

+1'± NGVD



②

CREST OF EXIST BAYFRONT
LEVEE AND FILL AT CL OF
WEIR No 2

CL EXIST BAYFRONT LEVEE

47'±

7'±

+7.6' NGVD

1
2

-10' NGVD

1
2

30'±

15'±

**WEIR No 2
LEVEE CROSS SECTION**

A
5

NOT TO SCALE

3

ONT LEVEE

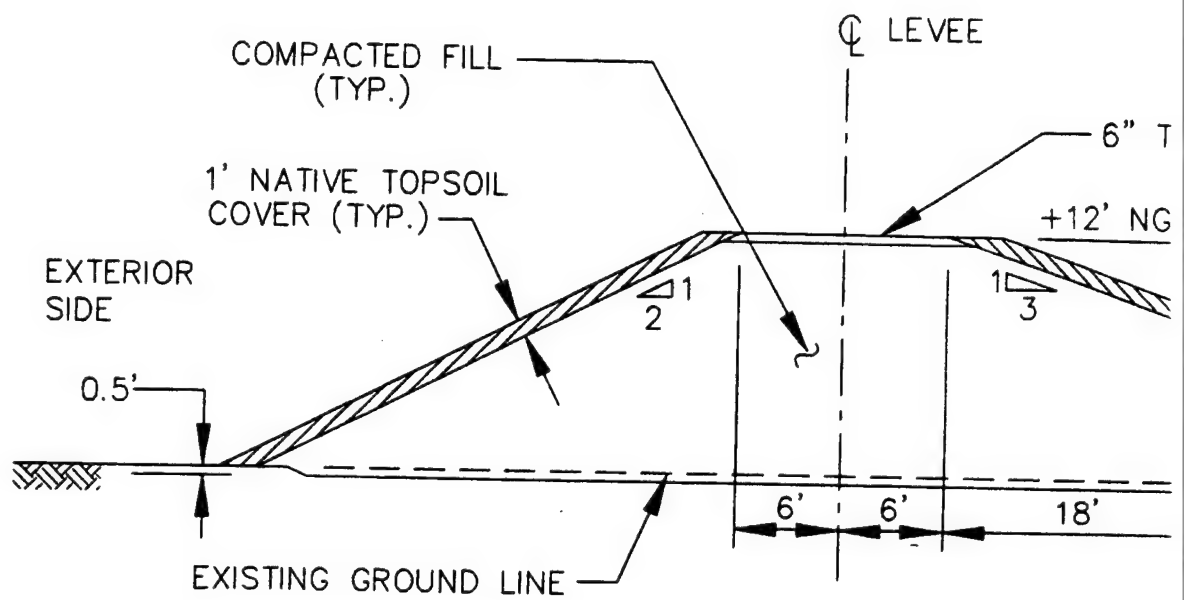
NGVD

EXIST DITCH

+3.5'± NGVD

$\frac{1}{2}$

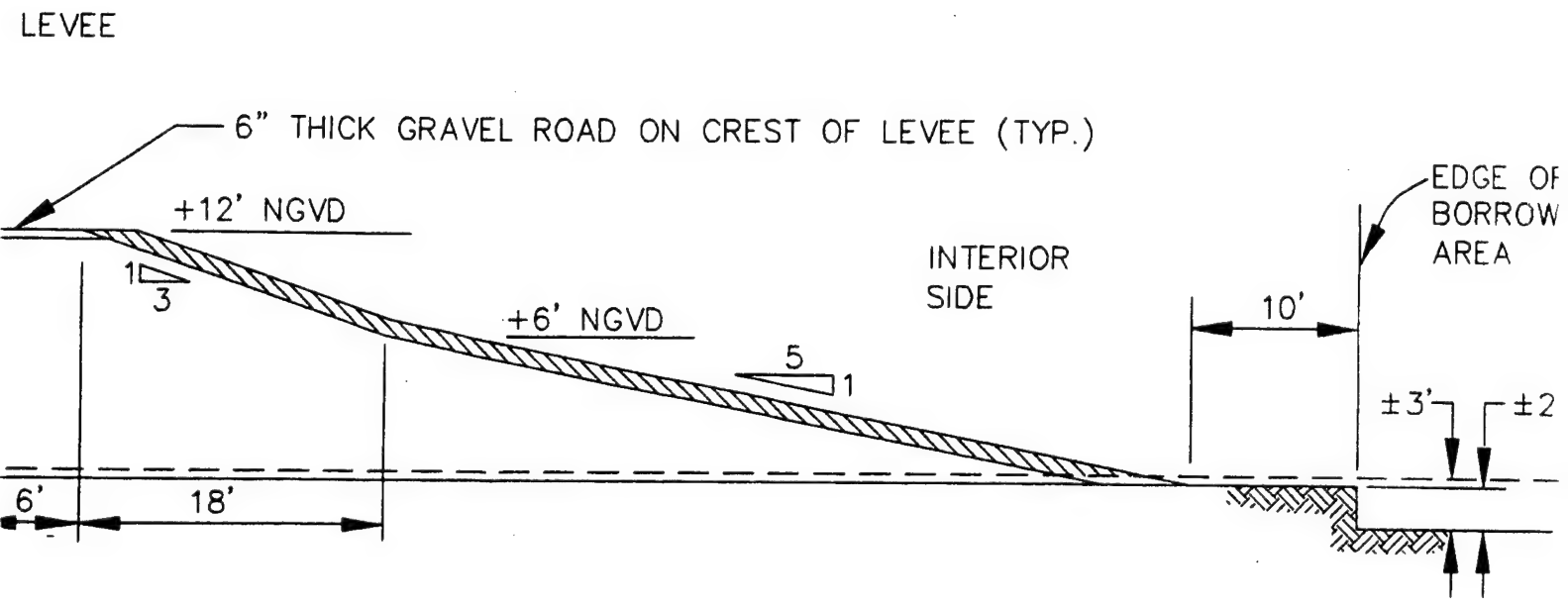
④



TYPICAL CROSS S
EXIST LANDSIDE PERIME'
(NIC - FOR INFORMAT

NOT TO SCALE

5



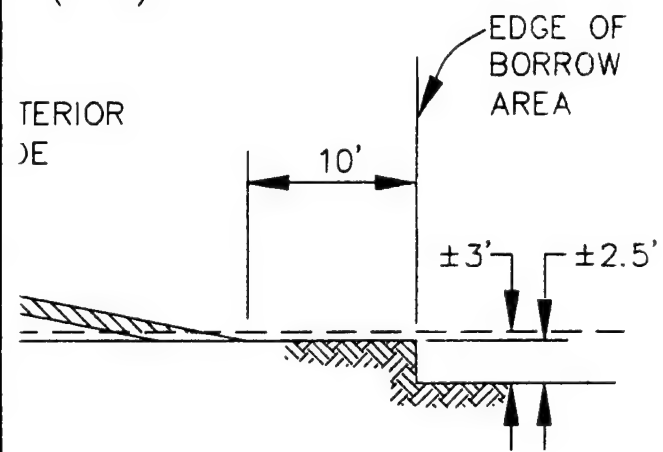
L CROSS SECTION
SIDE PERIMETER LEVEES
R INFORMATION ONLY)

NOT TO SCALE

6

2 (TYP.)

TERIOR
DE



⑦

CREST OF EXIST-
BAYFRONT LEVEE
AFTER GRADING
(THIS PROJ)
(TYP BOTH SIDES)

+4' NGVD

CREST OF
FILL AT W

C
5

8

A
5

WEIR No 2 LEEVE CROSS SECTION

NOT TO SCALE

CL EXISTING WEIR STRUCTURE

220'

CREST OF EXIST LEVEE AND
FILL AT WEIR LOCATION

EXCAVATE AND PLACE EXCAV
MATERIAL BEHIND EXIST LEV
UNCOMPACTED.
(SEE TYP CROSS SECTION 1

-10' NGVD

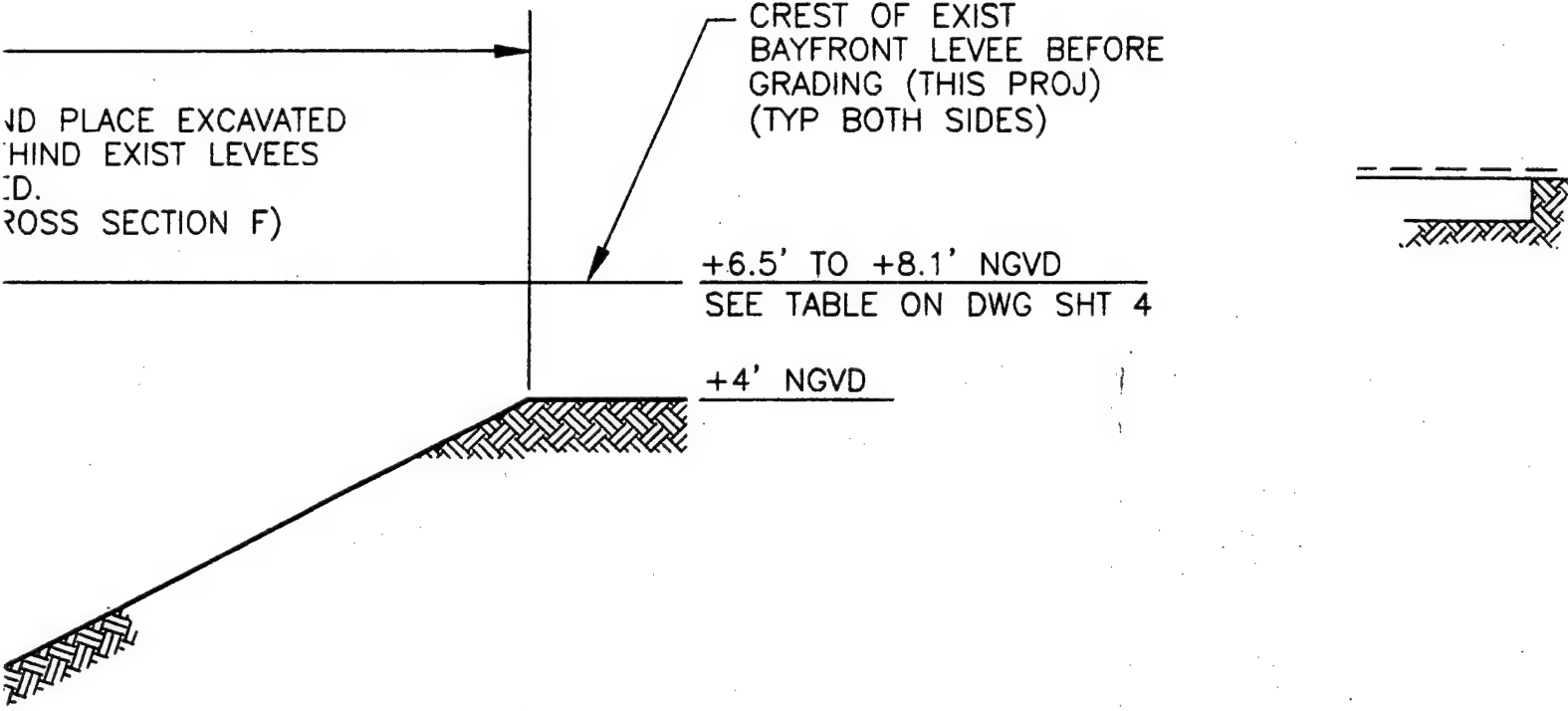
10'

C
5

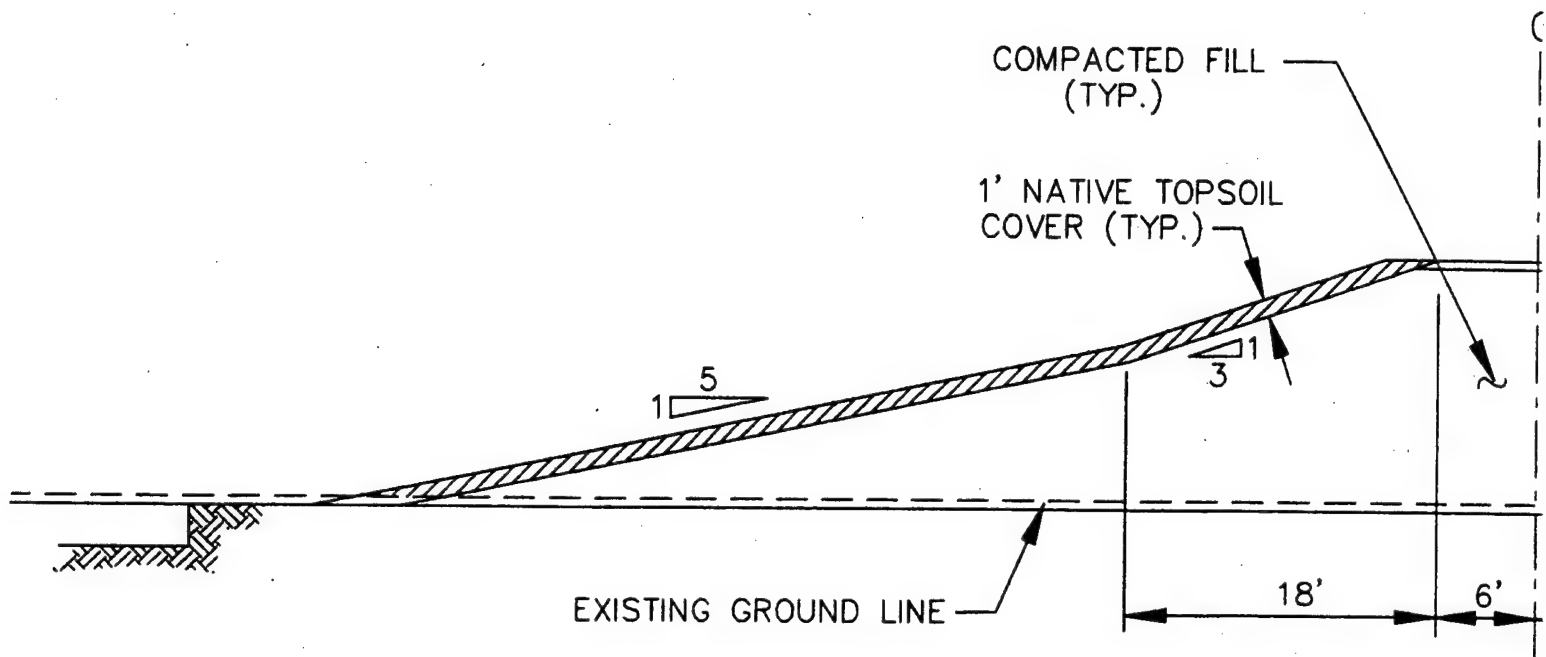
WEIR No 2 LONGITUDINAL LEVEE SECTION

NOT TO SCALE

9

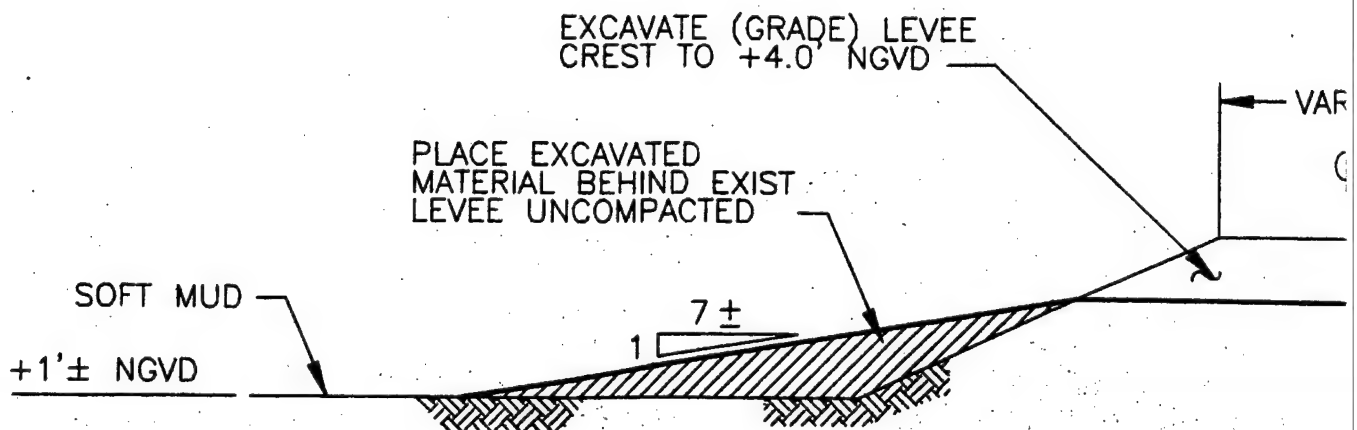


10

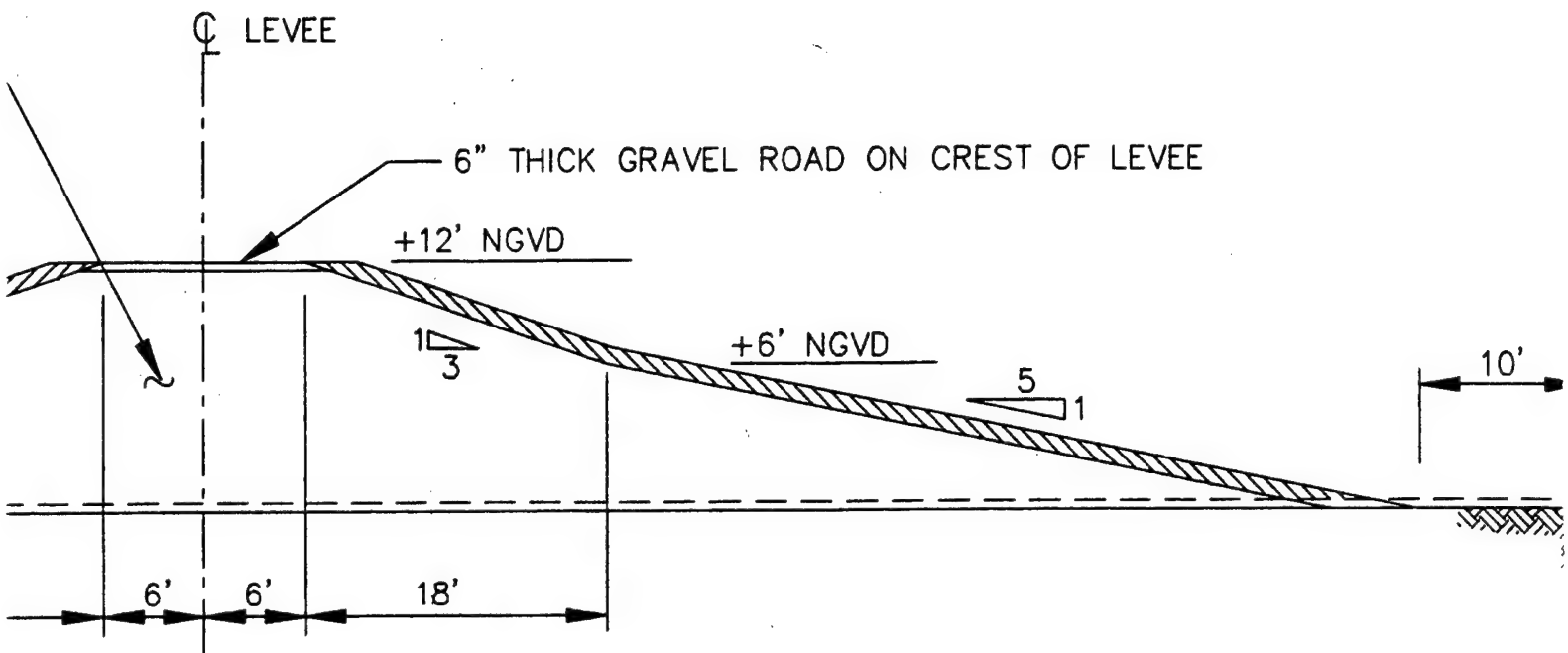


**TYPICAL CRO
EXIST LANDSIDE PE
(NIC - FOR INFO**

NOT TO



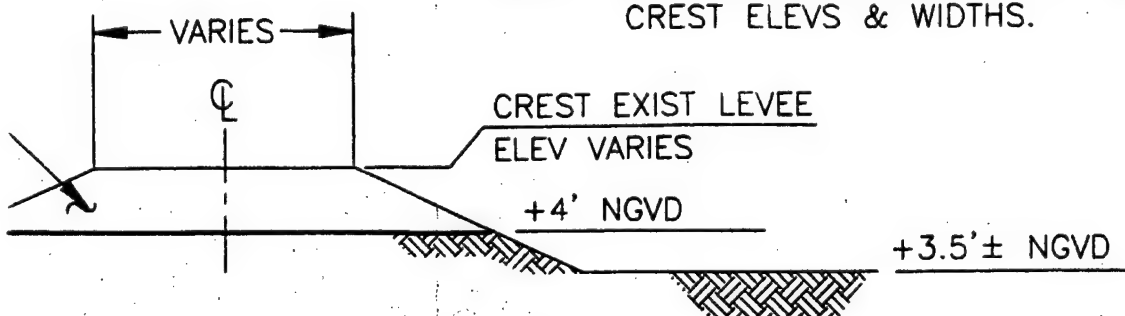
11



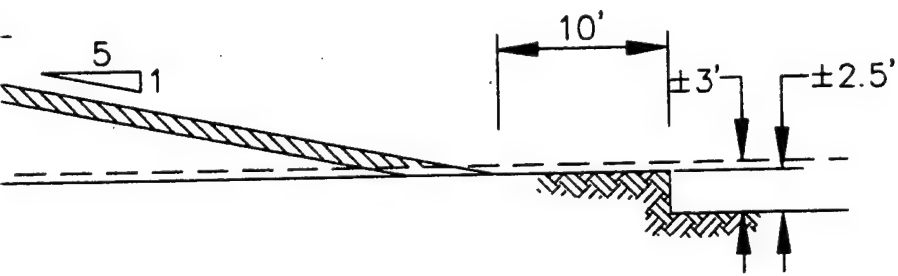
AL CROSS SECTION
OSIDE PERIMETER LEVEES
OR INFORMATION ONLY)

NOT TO SCALE

NOTE: SEE TABLE ON DWG SHT 4 FOR EXIST LEVEE
CREST ELEVS & WIDTHS.



CREST OF LEVEE

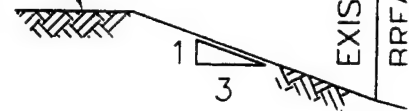


1/8 SHT 4 FOR EXIST LEVEE
WIDTHS.

3.5' ± NGVD

EXIST LEVEE CREST

+12' NGVD

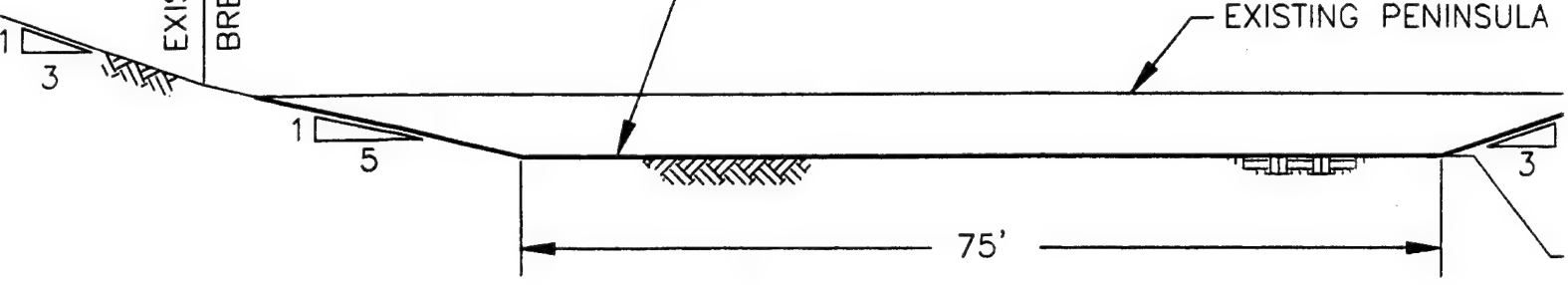


EXIST SIDE SLOPE GRADE
RRFAK @ +6' NGVD

EXIST SIDE SLOPE GRADE
BREAK @ +6' NGVD

EXCAVATE TO MATCH EXIST ADJACENT GROUND.
SPREAD EXCAVATED MATERIAL UNCOMPACTED
WITHIN AREAS SHOWN TO ELEV +2' NGVD.
SEE DWG SHTS 2, 3 & 4.

EXISTING PENINSULA



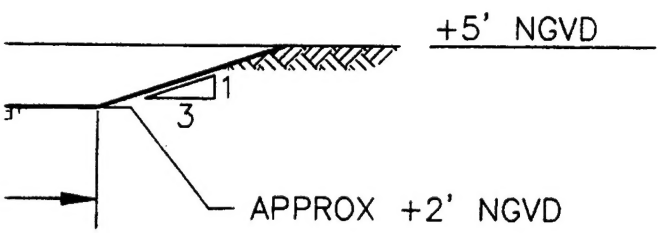
E
5

TYPICAL PENINSULA BREACH SECTION

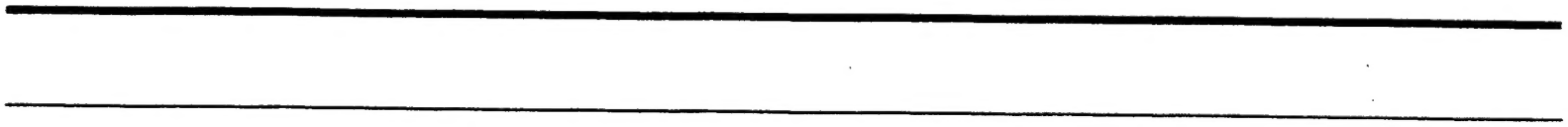
NOT TO SCALE

ENT GROUND.
COMPACTED
2' NGVD.

3 PENINSULA CREST



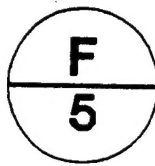
CTION



116

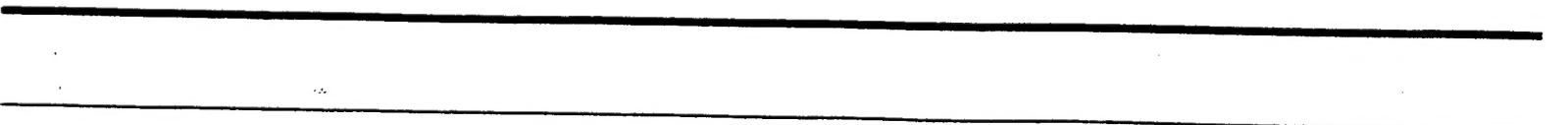
XXXXXX

XXXXXX



TYPICAL CRC
EXIST BAYFRONT PERIMETE

NOT



TYPICAL CROSS SECTION ONT PERIMETER LEVEE MODIFICATIONS

NOT TO SCALE

SYMBOL	DESCRIPTION	
REVISION		
DRAWN BY: SD		SONOMA COUNTY SOI LEVEE TYF
CHECKED BY: SC & SM		
DESIGNED BY: SC		
PROJECT COORDINATOR		
SUBMITTED:		
CHIEF, GEOTECHNICAL SECTION		
APPROVAL RECOMMENDED:		APPROVED
CHIEF, ENGINEERING BRANCH		CHIEF, PL
PREPARED UNDER THE DIRECTION OF RICHARD G. THOMPSON LT. COLONEL, C.E., DISTRICT ENGINEER		

IS

DESCRIPTION	DATE	APPROVAL
REVISIONS		
	U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO CORPS OF ENGINEERS SAN FRANCISCO, CALIFORNIA	
SD BY: SC & SM BY: C COORDINATOR	SONOMA COUNTY CALIFORNIA <h2 style="margin: 0;">SONOMA BAYLANDS LEVEE BREACH PROJECT</h2> <h2 style="margin: 0;">TYPICAL SECTIONS</h2>	
TECHNICAL SECTION		
RECOMMENDED:	APPROVED:	DATE:
CHIEF, ENGINEERING BRANCH	CHIEF, PLANNING/ENGINEERING DIVISION	
PREPARED UNDER THE DIRECTION OF RICHARD G. THOMPSON COLONEL, C.E., DISTRICT ENGINEER		
SCALE: 1"=100'		JOB NO.:
DRAWING NUMBER		
SHEET: 5	155	57 2